BUREAU OF HYGIENE & TROPICAL DISEASES
23 OCT 1929

CITY AND COUNTY OF NEWCASTLE-UPON-TYNE.

ANNUAL REPORT

OF THE

MEDICAL OFFICER OF HEALTH

ON THE

Sanitary Condition of the City

DURING THE YEAR

1928.

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Members of Council who served on the

HEALTH COMMITTEE.

Councillor R. W. Simpson, M.B., Ch.B., Chairman.

Alderman David Adams, J.P., Vice-Chairman.

The Lord Mayor (Councillor A. W. Lambert, M.C., J.P.)

Alderman Adam Wilson, J.P., F.R.C.S.

,, J. J. Forster, J.P.

,, Walter Lee, J.P.

Councillor G. D. Newton, L.R.C.P.

,, Walter Thompson.

,, Catherine A. Auld.

,, W. C. Percival.

,, W. V. Longfield.

Councillor John Barker, J.P.

,, H. Moat, Junr.

,, A. Louvre.

,, J. Pearson.

MATERNITY AND CHILD WELFARE COMMITTEE.

‡Councillor John Chapman, J.P., Chairman.

* ,, Catherine A. Auld, Vice-Chairman.

*Alderman David Adams, J.P.

*Councillor G. D. Newton, L.R.C.P.

* ,, R. W. Simpson, M.B., Ch.B.

* ,, Walter Thompson.

* ,, A. Louvre.

‡ ,, Jeanie L. Gibbin, J.P

†Dr. R. P. R. Lyle.

†Miss G. Rowell.

†Mrs. W. Brackenbury, J.P.

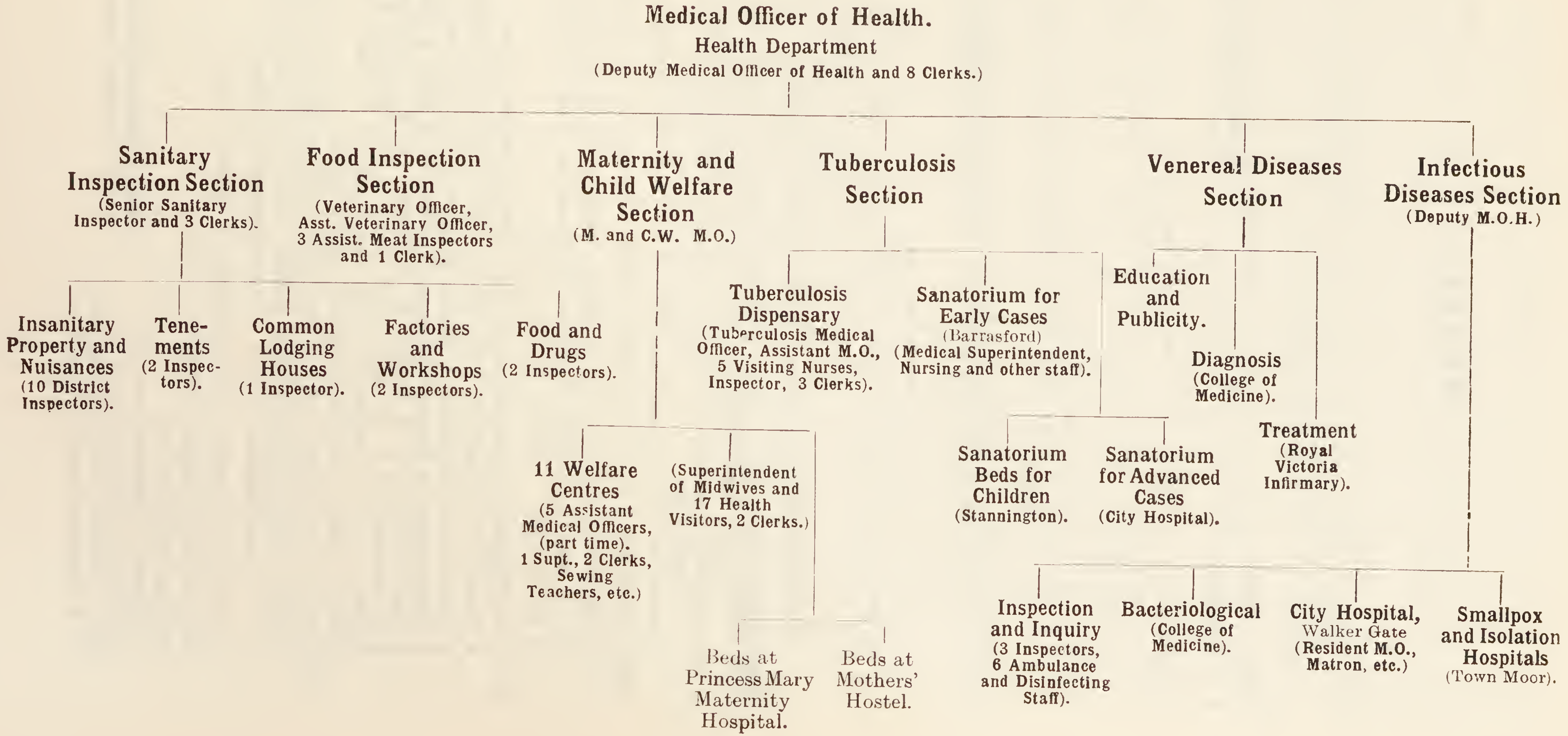
†Mrs. E. M. Williamson.

* Member of the Health Committee.

† Co-opted member.

‡ Appointed by City Council.

Table showing the various Sections of the Health Committee's work which is under the direct charge of the Medical Officer of Health.


Medical Officer of Health.
Health Department
(Deputy Medical Officer of Health and 8 Clerks.)
Sanitary Inspection Section
(Senior Sanitary Inspector and 3 Clerks).
Food Inspection Section
(Veterinary Officer, Asst. Veterinary Officer, 3 Assist. Meat Inspectors and 1 Clerk).
Maternity and Child Welfare Section
(M. and C.W. M.O.)
Tuberculosis Section
Venereal Diseases Section
Infectious Diseases Section
(Deputy M.O.H.)
Insanitary Property and Nuisances
(10 District Inspectors).
Tenements
(2 Inspectors).
Common Lodging Houses
(1 Inspector).
Factories and Workshops
(2 Inspectors).
Food and Drugs
(2 Inspectors).
11 Welfare Centres
(5 Assistant Medical Officers, (part time). 1 Supt., 2 Clerks, Sewing Teachers, etc.)
(Superintendent of Midwives and 17 Health Visitors, 2 Clerks.)
Beds at Princess Mary Maternity Hospital.
Beds at Mothers' Hostel.
Tuberculosis Dispensary
(Tuberculosis Medical Officer, Assistant M.O., 5 Visiting Nurses, Inspector, 3 Clerks).
Sanatorium for Early Cases
(Barrasford)
(Medical Superintendent, Nursing and other staff).
Sanatorium Beds for Children
(Stannington).
Sanatorium for Advanced Cases
(City Hospital).
Education and Publicity.
Diagnosis
(College of Medicine).
Treatment
(Royal Victoria Infirmary).
Inspection and Inquiry
(3 Inspectors, 6 Ambulance and Disinfecting Staff).
Bacteriological
(College of Medicine).
City Hospital,
Walker Gate
(Resident M.O., Matron, etc.)
Smallpox and Isolation Hospitals
(Town Moor).

STAFF.

HAROLD KERR, O.B.E., M.A., M.D., Ch.B., D.P.H., Medical Officer of Health and Medical Superintendent of the City Hospitals for Infectious Diseases.

T. N. V. POTTS, M.D., B.S., B.Hy., D.P.H., Deputy Medical Officer of Health (Resigned April, 1928).

J. A. CHARLES, M.R.C.P., M.B., B.S., D.P.H., ,, (Appointed May, 1928).

CHRISTOPHER RAIMES, Senior Sanitary Inspector.

Jas. McNichol, Chief Assistant Inspector and Assistant Workshops Inspector.

Isaac Clark, Assistant Workshops Inspector.

Jas. Hunter and Adam Flockhart, Assistant Inspectors under the Food and Drugs Acts.

W. F. Bacon, Jas. McKendry, L. W. Johnson, Thos. Heslop, Wm. Gray, Wm. E. Perkins, J. Brown, W. Stewart, A. Kirsop, Geo. Phillips, District Inspectors.

F. Galton, J. Black, Tenement Inspectors.

George Hardie, Assistant Inspector of Common Lodging Houses.

Wm. Bean, L. Wade, M. Swales, Infectious Disease Inspectors.

Jas. Robson, Jas. Bruce, Jno. R. Cragie, J. W. Robson, Thos. Moore, J. Robson, Junr., Ambulance Drivers and Disinfectors.

WM. MILNE, *Geo. Cuthbertson, *Alfred Hedley, M.S.M., *Alec M. Walker, Jos. Gilhespy, H. G. Oliver, *Robt. Lawson, D. Macpherson, J. Bacon, Ivy Goodhall (Typist), Clerks in the Health Department.

(Those marked * hold the Sanitary Inspector's Certificate of the Royal Sanitary Institute).

THOS. PARKER, F.R.C.V.S., Veterinary Officer and Inspector of Provisions.

H. Thornton, M.R.C.V.S., B.V.Sc., D.V.H., Assistant Veterinary Inspector.

Jas. M. Anderson, E. H. Johnson, W. Cockburn, Assistant Inspectors of Provisions. *Norman Dickson, Clerk.

A. F. G. SPINKS, M.D., Maternity and Child Welfare Medical Officer.

a Georgina B. Cameron*, Chief Health Visitor and Supt. of Midwives.

f Catherine M. Thexton†, **b** Marian Moody*, **c** Lizzie Isa Pritchard, **c** Louise Shell, **d** Florence Martha Hatfield*, **b** Mary I. Wigham, **d** Hilda Morton*, **d** Norah B. Willson*, **d** M. T. Smithson*, **d** E. Johnson*, **d** N. E. Carr*, **d** E. Hisco*, **d** T. Mason*, **d** E. M. Hastie*, **b** C. R. Worrall*, **b** J. Pottinger, **b** N. Lewis, Health Visitors. Edith Rodgers, Marion S. Batt, Clerks.

(Qualifications of those marked **a** C.M.B., General and Fever Nursing and R.S.I. Certificates. **b** C.M.B., General Nursing and R.S.I. **c** C.M.B. and R.S.I. **d** C.M.B. and General Nursing. **e** C.M.B., General and Fever Nursing. **f** C.M.B., Fever Nursing and R.S.I.)

* State Registered Nurse. † State Registered Fever Nurse.

Annie G. Bainbridge, Superintendent of Welfare Centres.

Amy Rodgers, Gladys Pattison, Clerks.

H. Glen Davison, M.D.
L. Mabel R. Campbell, M.B., Ch.B.
H. Harvey Evers, M.B., F.R.C.S.
Jas. C. Spence, M.D., B.S., M.R.C.P.
F. J. Nattrass, M.D., B.S., M.R.C.P.

Assistant Medical Officers (part time), Welfare Centres.

G. HURRELL, M.D., B.S., B.Hy., D.P.H., Tuberculosis Medical Officer.

I. M. McLachlan, M.D., B.S., B.Hy., D.P.H., Assistant Tuberculosis Medical Officer.

Wm. H. Dickinson, O.B.E., M.D., F.R.C.P., Ch.B., D.P.H., Tuberculosis Medical Officer (part time).

c Constance M. Bayne, d Annie Booth, a W. E. Dale*, b J. P. Kenmir*, e E. Farbridge*, Tuberculosis Visiting Nurses.

(Qualifications of those marked **a** General Nursing. **b** General Nursing, C.M.B. and R.S.I. **c** General Nursing and Health Visitors and School Nurses Certificates of R.S.I. **d** Fever Nursing. **e** General Nursing and C.M.B.)

* State Registered Nurse.

E. Wingate, Assistant Inspector.

George Magnay, Pamela E. Thoratt, Gertrude Gillender, Clerks.

C. G. R. GOODWIN, M.R.C.S., L.R.C.P., Medical Supt., Barrasford Sanatorium.

Frances Baguley, Matron ; Sister, Nurses, Servants.

J. W. HUNTER, M.D., Ch.B., B.Hy., D.P.H. Resident Medical Assistant.

W. FRANK WILSON, M.B., B.S., Consulting Oto-rhinologist, City Hospitals for Infectious Diseases.

H. E. COOK, Matron, City Hospitals for Infectious Diseases.

Jessie Laing, Assistant Matron. Sisters, Nurses, Clerks, Servants.

M. Burrill, Dispenser.

Jas. Cockburn, Engineer. Geo. Cockburn, Assistant Engineer.

Herbert Blacktin, Frank Harrington, Lodge Keepers, City Hospital, Walker Gate. Firemen, Porters, Gardeners, Joiner, and Handyman.

Jos. W. and Jane Stephenson, M. and I. Robson, Caretakers at Smallpox and Isolation Hospitals.

To Councillor R. W. SIMPSON, M.B., Ch.B., etc., Chairman of the Health Committee of the Corporation of Newcastle-upon-Tyne.

SIR,

1928 witnessed what we hope will prove the last of the post-war slump in prosperity for Newcastle; particularly at the end of the year trade was bad, the business community was pessimistic, and unemployment figures had risen. The coal trade remained seriously depressed, and though the shipyards were fairly busy the prices obtained were not too remunerative. Owing to the large debt they had already incurred, the Board of Guardians was obliged to tighten up conditions of relief, and for the year ended 31st March, 1928, their payments to the destitute amounted to £383,460, as against £486,374 in the previous 12 months. This did not mean that there were fewer claims on their assistance, but that the relief granted was less.

The cost of living figure continued to fall from 69 per cent. to 68 per cent. above the pre-war rate by the end of the year.

Unemployment increased, and, from information courteously supplied by the Manager of the Labour Exchange, rose from 16,741 in January to 19,248 at the end of the year. At the end of 1927 it was approximately 16,634. The number of unemployed women declined from 1,142 in January to 1,026 in May, but rose steadily each month subsequently until it stood at 1,950 in December.

Once again the Hospitals and other charitable institutions in the City have been hard hit, and are clamouring for increased funds.

CLIMATE.—In 1928 we experienced fairly open weather in the early part of the year, a moderately good summer, but a wet and inclement autumn, there being high gales and a good deal of rain in the closing months. August, the popular holiday month, was again the wettest in the year, the rain fall being 4·9 inches, an excess of 2·19 inches over the local average.

The **Sunshine Records** were continued at Armstrong College by Professor Todd, and at Cockle Park by Professor Heigham. The amount of sunshine recorded was greater than in 1927, namely, 1,169 hours in Newcastle, and 1,406 at Cockle Park, as compared with the record for 1927 of 899 hours in Newcastle and 1,250 at Cockle Park. That is to say, that the City only had about three-quarters of the amount of sunshine that was available in the neighbouring country districts.

The Atmospheric Pollution Gauges which measure the City's smoke recorded rather lower deposits than in 1927, the precipitation indicated being, in tons per square mile, 839 at City Road, 446 at Westgate Cemetery, and 269 at the Smallpox Hospital.

Contrasting the deposit at Westgate Hill, a purely residential district, with that at the Quayside, which is mainly industrial, about two-thirds of the total deposit in the latter area was found to consist of ash, that is to say, the results of complete combustion of fuel, while in Westgate Hill ash only amounted to half of the total deposit. On the Quayside the deposit contained 2 per cent. of tar, which is the most destructive element of coal smoke, and is a measure of the incompleteness of the burning of the fuel, but in the Westgate area tar composed 3 per cent. of the fuel indicating that although proportionately much more coal was burnt in the industrial part of the City than in the residential, in the latter that combustion was not as thorough, so allowing a proportionately larger amount of destructive matter to escape into the atmosphere.

As is to be expected, the records on the Town Moor show a very much lower deposit than either of the others.

It has been shown over and over again that while industrial chimneys pour forth much more concentrated volumes of pollution into the atmosphere, the private house, with its inefficient fires, does relatively more damage, since its smoke contains a larger proportion of the volatile constituents of coal, including more of the greasy tarry matter which plays so large a part in befouling everything with which it comes in contact. Industrialists are alive to the economy side of the problem, so far at least as it effects their fuel costs, and their co-operation in whatever measure promises them economies may be relied upon. The domestic chimney, however, which is exempted by law from interference, is one of the greatest difficulties we have to face. The cheapness of raw coal, as compared with other fuels, and the householders' preference for a bright flaming fire, which he can poke in moments of mental irritation, irrespective of the actual efficiency of the fuel, make it extraordinarily difficult to popularise other and much more efficient substitutes. Electricity or gas for intermittent use, or one or other of the fuels prepared from coal by first extracting from them the very valuable byproducts, which are almost entirely wasted otherwise, are all much more effective than raw coal as well as cleaner. Low temperature carbonised articles, such as "Coalite," manufactured by The Low Temperature

Carbonisation, Ltd., "Ricoal," by the Illingworth Carbonisation Co., Ltd., and "Kincole," by the Glasgow Corporation Gas Department, have the merit of lighting easily, burning with a flame, and producing very much more heat than a coal fire, but unfortunately they are still relatively costly. In ordinary gas coke lies an excellent substitute for coal. It can be burnt in any grate in which there is ample provision for bottom draught, it can be lighted in the ordinary way with sticks and paper, or very much more easily by means of a row of gas jets placed below the bars and turned on for a quarter of an hour after filling the grate with coke. The result is a bright fire that becomes and remains red throughout very quickly, and which throws out at least twice as much heat as the corresponding coal fire. There are no smoke, no fumes, no soot, no dirty fuel to handle, and the total cost of gas and fuel together works out at less than under the older system.

If only these alternatives could be popularised, it would very soon be possible to make the consumption in domestic fire places of coal direct from the pit a criminal offence, as indeed it is. Something must be done, and that quickly, to check the constantly increasing cloud of smoke that overhangs our towns, cuts out the sunshine, and makes life so much duller and drearier and less wholesome than in the country. It is a most depressing spectacle to anyone a few miles up the Tyne to see the fog bank from Newcastle gradually creeping up and overwhelming everything it meets on any fine afternoon on which there is a breath of air from the sea. A previously bright and sunny day becomes dank, cold and dull, while everything outside the horrid influence remains as it was.

The Corporation chimneys, it is encouraging to note, have improved their previously black record very substantially. The Tramways chimney at the Manors no longer emits dense volumes of black smoke that were its previous characteristics, but by means of forced draught there has been accomplished a much more complete combustion of the fuel. This, unfortunately, is accompanied by the emission of a considerable quantity of grit, for which there has not as yet been found an effective remedy. This is highly objectionable, though less so than was the smoke. It was found that the chimney of the new Northumberland Road Baths threatened to produce an almost equal nuisance, but the Baths Committee, as the result of praiseworthy energy, found an apparatus which killed off smoke immediately, and rendered the chimney quite inoffensive. This installation, which is also believed to have produced an economy in the coal consumed, is now being installed in other notorious plants.

Atmospheric pollution cannot be prevented by purely local action, but must be dealt with over a large area. Thus it is hopeless to attempt to remedy it by action in Newcastle if in other parts of what is a single large industrial area nothing is done. The prolonged attempts to unite the Local Authorities in the creation of a single Tyneside Regional Smoke Abatement Committee ended in failure through inability to overcome apathy, indifference, or the paralysing jealousies between neighbours. For the time being, at any rate, that project is moribund, and only after other and perhaps stronger influences have been brought to bear will it be possible to effect an all round lessening of this preventable but growing evil.

There is a considerable degree of misunderstanding of the purpose of such a conjoint Committee, and it would be as well to record here the objects which it was desired to effect by this means :—

1. To consist of one representative from each (Riparian) area, with an additional representative from each of the four County Boroughs.

2. To consider smoke production within the areas of all Riparian Local Authorities from Tynemouth and South Shields to Newburn and Blaydon, together with Gosforth, Longbenton, Earsdon and Whitley Bay.

3. (*a*) To formulate and exclusively to carry out a scheme for dealing with smoke production, by interesting manufacturers in its prevention, assisting them by a skilled inspector of the Regional Committee, instituting practical classes for training engineers and stokers, by the formulation and execution of by-laws regulating smoke production, and by adopting any other means appropriate for the purpose.

or

(*b*) To formulate and exclusively to carry out a scheme for dealing with smoke production, by interesting manufacturers in its prevention, assisting them, by a skilled inspector of the Regional Committee, instituting practical classes for training engineers and stokers, by the formulation and recommendation of by-laws regulating smoke production, and by adopting any other means appropriate for the purpose.

4. All expenses of the Committee to be borne by the constituent authorities on the basis of relative population.

The Registrar General estimated the **POPULATION** during 1928 to be 281,500, as against 288,500 in the previous year, and the Census figure for 1921 of 278,400. It is evident that bad trade and unemployment must have accounted for a considerable amount of emigration from this district.

The number of **MARRIAGES** during the year 1928 was 2,195, which is 53 less than in 1927, and about the same as in the previous years.

The **BIRTH RATE** rose to 19·2 births per 1,000 population, as against 18·7 in 1927, the lowest yet recorded. That for the whole country was 16·7.

The **GENERAL DEATH RATE** was 13·1 per 1,000, as compared with 12·4, the record for the City in 1927. It was 11·7 for England and Wales, and 11·6 for the great towns.

The *Natural Increase* of population (Births minus Deaths), was 1,745. This is more than counter balanced by other factors, however, such as emigration, for, as stated above, the Registrar General has reduced his estimate by 7,000, as compared with 1927.

A broad analysis of the causes of death shows that diseases of the **Circulatory System** constitute a steadily growing class, which in 1928 accounted for over 21 per cent. of the total deaths, as against 21 per cent. in the previous year. These are caused by rheumatism, by stress and strain, and by late effects of such racial poisons as syphilis and alcoholism.

Respiratory Diseases caused 13 per cent. of all deaths in 1928, as against 17 per cent. in 1927.

Diseases of the Nervous System claim much the same mortality as in 1927 and 1926, the proportion of the total deaths in each year being 9 per cent.

Diseases of the Digestive System caused about 7 per cent. of the total deaths, which is a comparatively low proportion. There was little more than half the number that was recorded in 1914.

Cancer deaths again showed an increase, and the number of deaths, 420, constituted over 11 per cent. of the total deaths in the City. In 135 cases the disease affected the stomach or liver, and in 92 the intestines; that is to say, in more than half the deaths the part affected was the digestive tract; in 82 cases the female genital organs, or breast, were involved; other organs in 84, and in 27 some part of the mouth. 199 deaths occurred in males and 221 in females, the latter sex always suffering more from this disease than the former. The average age at death was 63 for males and 61 for females.

Much investigation has been carried out during the year of the after-history of known sufferers, the results being used by the Ministry of Health Departmental Committee on Cancer (Medical Officers of Health Sub-Committee).

The University of Durham College of Medicine's Cancer Investigation Committee has affiliated with the British Empire Cancer Campaign as its North of England Council. The purpose of this is to raise funds for various purposes relating to the disease, such as to provide for research, the setting up of a Radium Institute in Newcastle for the North of England, and other matters. By this affiliation it will be possible to obtain information of everything that is being done elsewhere and guidance as to the most promising lines of work here, thus avoiding the waste of effort involved in independent research by unrelated and unco-ordinated bodies.

Diabetes has remained practically stationary in the death returns for the last seven years. In 1928 there were 35 deaths, including two under 2 years, and one between 15 and 25 years, making since 1923, when *insulin* was first introduced for treatment, three deaths under 2, two between 5 and 15, and two between 15 and 25, whereas in the five preceding years there were no deaths under 2 years, 7 between 5 and 15, and 14 deaths between 15 and 25. It has never been suggested that insulin is a cure for diabetes, but it undoubtedly supplements the defective function of the pancreas so long as it is being administered. Therefore its administration has to be continuous.

EPIDEMIC AND INFECTIOUS DISEASE incidence was again low, and in respect of this the year has been very healthy.

There were 76 cases of **Smallpox,** not including eight from outside the City, as compared with 111 in 1927. These were all of the so-called mild type, and there were no deaths. Several suffered from really severe attacks which, although not fatal, caused the patients to be very ill indeed. 43 of the patients had never been vaccinated, 41 had been vaccinated in infancy only, and the earliest occurrence of the disease subsequent to vaccination was 19½ years. The disease is easily handled if taken promptly, and all known contacts vaccinated. This was done in every instance, and refusal of the proffered protection is practically unknown.

Infantile vaccinations rose from 61 to 75 per cent. in the Newcastle Union, which does not include Walker. Vaccination in Walker is more popular than it is in the West end of Newcastle.

Measles occurred in mild epidemic form in June and July, and again in November and December. There were 56 deaths, representing a case mortality of 1·3 per cent. of the cases notified. A Health Visitor attended at 91 per cent. of the patients' homes to ensure that doctors' orders were being properly carried out, and to trace other unnotified or suspected cases on whom a doctor ought to be in attendance.

Whooping Cough was again rather more frequent, there being 50 deaths (0·18 per 1,000 of population), as against 20 deaths (0·07 per 1,000 of population) in 1927.

There were 262 cases of **Diphtheria,** a low incidence, although the highest since 1921. The case mortality was only 3·1 per cent., the lowest ever recorded in Newcastle, while the death rate per 1,000 population (0·03) is very nearly the lowest that we have experienced. The case mortality indicates that the disease was of very mild type.

Scarlet Fever continues on the wane. There were only 506 cases notified, with two deaths, the death rate (0·01) per 1,000 population being the lowest ever recorded.

Enteric Fever (Typhoid and Para-Typhoid) occurred in 26 instances, including four patients at the Royal Victoria Infirmary from outside areas. Of the 22 Newcastle cases four died, together with one of the outside area patients. One of the City cases was a member of the nursing staff at the Royal Victoria Infirmary, who although she suffered a severe attack of the disease, happily recovered.

Protection of the staff at the City Hospital has been in use in the case of enteric fever for 14 years, diphtheria for 3 years, and scarlet fever for 1½ years. Previous to this system of prophylactic vaccination, these diseases caused a quite substantial number of casualties among the nurses, sometimes with severe after-effects, and in one or two instances with a fatal termination. Since this protection has been available, when it was immediately adopted there has been no instance of a nurse contracting any of the diseases in question, although working constantly among them. Surely this is convincing proof of the efficiency of the precaution. Since the outbreak of enteric fever at the Royal Victoria Infirmary the same procedure is now followed of inoculating the staff of that institution.

Diarrhœa caused 116 deaths, of which 81 were in children under two years of age. While this number is a considerable increase upon that of the previous year (71), it falls very far short of the incidence of 20 years ago. Better sanitation, the change from horse to motor traction, and consequent disappearance of the manure in which countless flies bred, together with the steady influence of maternity and child welfare work, and its wonderful educative effect upon the vast majority of the mothers, have undoubtedly brought this about. Summer diarrhœa is no longer the annually recurring scourge that it used to be, nor does Rachael have to weep for her children that are not, on account of this. One of the problems of the year has arisen through the discovery of a number of cases of bacillary dysentery scattered throughout the City. There is little doubt that many of these have in the past been diagnosed as simple diarrhœa. The disease is similar to, or the same as, that which is common enough in tropical countries, and is readily conveyable to other persons. The medical practitioners were circularised asking them to notify any cases presenting acute gastro-intestinal symptoms, particularly when the generally accepted signs of dysentery, namely, blood and mucus in the stools, were also in evidence. Out of 227 cases brought to notice, 66 in all, of whom 60 belonged to the City, were confirmed. 42 were admitted to the City Hospital, where two died. Careful enquiry was made with a view to the possible existence of "carriers," who might have acquired the disease while on foreign service, but no definite evidence was obtainable. The disease was commonest in children from 1 to 5, and most dangerous between 5 and 15, while boys were more frequently and more severely affected than girls. The disease appeared to find lodgment preferably where there was overcrowding. Bacteriologically there were found to be six definite types of the characteristic causative bacillus, one of which appears to be a new organism which its discoverers have named the *Newcastle bacillus.* Every discovered case is carefully investigated with a view to finding the best means of preventing its spread.

Two outbreaks of **Food Poisoning** came to notice, but there were no deaths. One, which affected the staff of a large drapery stores in the City, was an accidental chemical poisoning through the dissolving of tartar emetic from the enamel of some buckets by "lemonade" crystals, used in the preparation of a cooling drink during a spell of hot weather. Beyond creating considerable alarm, and a certain amount of inconvenience, there were no serious results from this. The only instance of bacterial food poisoning which occurred affected four separate families from the consumption of canned corned beef. 10 persons were affected all within a couple of hours of eating the affected food. All the evidence pointed to the infection originating from one particular can of beef, but none of its contents were recoverable for bacteriological examination. No bacillus of the type characteristic of the food poisoning group could be found, although there was little doubt that that was the cause of the illness.

There were six cases of **Acute Poliomyelitis,** or infantile paralysis, one of whom died, while the remainder made a complete recovery. There were ten cases of **Cerebro-Spinal Fever**, four of whom died, and 20 of **Encephalitis Lethargica** ("sleepy sickness,") of whom ten died. An attempt is made to follow up all known recovered cases every year, to ascertain their after-history. Since 1919 there have been up to the present 311 notifications, of whom 152 were admitted to Hospital. Of 244 whose history it has been possible to ascertain, 117 are known to be dead, 41 to be totally incapacitated, 14 have after-effects which interfere with their usual occupation, and 33 with more or less serious after-effect, but not preventing their continuance at their trades. 39 are believed to have been cured. A number of them have been, or are, in Mental Hospitals, others form a serious problem for Mental Deficiency Committees, and many others again constitute a grave burden for their parents or friends. The disease is a terrible one, perhaps the most to be dreaded of all, and its cure is not yet known.

Reference is made to **Tuberculosis** under a special heading subsequently.

Hospitals for Infectious Diseases.—To the *City Hospital*, Walker Gate, with its approximate 300 beds, were admitted 1,294 cases of fever, etc. (including two cases from the Tyne Port Sanitary Authority), and 267 cases of pulmonary tuberculosis. The latter occupied not only the special tuberculosis annexe, but also one of the more isolated fever pavilions of 30 beds. It is interesting to contrast the present day case mortalities from the three diseases for the accommodation of which the Hospital was built, with the figures for the five years 1891-5. Scarlet fever mortality in Hospital was then 3·1 per cent., as compared with 0·4 per cent. last year. Diphtheria was 28·3 per cent., as compared with 4·9 per cent. in 1928, while enteric fever remains about the same, that is, about one death in five cases. There are, however, so many less of the last named that a comparison is somewhat difficult.

As regards scarlet fever, from the recently discovered causative organism it is possible to prepare antitoxin, and this has been used at Walker Gate since it first became available in 1925. 39 per cent. of the cases admitted, being the rather more severe ones, received this form of treatment.

Dr. J. A. Charles, in the section of the report dealing with the City Hospital, gives a careful and considered analysis of the effect of the use of this remedy. The conclusion he arrives at is that antitoxin is indispensable in the treatment of scarlet fever, that the earlier it is administered the better, and that it definitely shortens the stay in Hospital of the severe cases to which it has been administered.

Dr. W. Frank Wilson, the visiting oto-rhinologist, operated upon 19 patients (14 tonsils and adenoids and 5 mastoids), and all made a complete recovery. The average stay in Hospital for cases of scarlet fever was 29·3 days, the lowest yet attained. The return case rate was 1·3 per cent.

Diphtheria as we know it at present is a disease of which it can be said that every case is curable, and that death only occurs through the failure to recognise the significance of the early signs of the condition. Prompt inoculation with diphtheria antitoxin, without awaiting the results of a bacteriological examination, is essential. It must never be forgotten that a simple infection of the tonsils or palate, or of the visible throat, is liable to spread very rapidly to the nose or the windpipe, in either of which situations the results are highly dangerous, and actually fatal in a large proportion of cases. The delay of a few hours may make all the difference between an easy prompt recovery and death.

40 members of the nursing staff suffered from various illnesses, including one case of measles. Of the domestic staff 38 were off duty through sickness. 949 days duty in all were lost by the staff through ill-health.

As stated previously, since protective inoculation was adopted against scarlet fever, diphtheria, and enteric fever, there has been no case of any of these diseases among the staff of the Hospital, which has led to a very considerable saving of lost duty time to the Hospital and of much risk and suffering to members of the staff. Other diseases than these three are admitted to the Hospital according to circumstances, and in 1928 included 170 cases of pneumonia, of whom 22, or 13 per cent. died ; 98 measles (including 5 rubella), of whom 11, or 11·3 per cent. died ; 49 erysipelas (6 deaths) ; 12 chickenpox, 2 encephalitis lethargica, 5 cerebro-spinal fever, 77 gastro-intestinal conditions other than enteric fever, 13 whooping cough, and 4 ophthalmia neonatorum. The cases of pneumonia are admitted for the prevention of spread of the disease to others and in the interests of sufferers whose home conditions are not favourable to the care and nursing that is their chief need.

The Tyne Port Sanitary Authority has sent all its fever cases to the City Hospital, and these numbered 2 in 1928, and 1 in 1927.

The **Smallpox and Isolation Hospitals,** with 72 and 100 beds respectively, were in use throughout the year for 92 patients. Of these ten were found to be suffering from diseases other than smallpox, and of the smallpox cases two, from Wingrove Hospital, died from Cancer. There were 230 contacts admitted to the Isolation Hospital, their stay being only very temporary in most cases, merely to permit of the thorough disinfection of their homes.

Bacteriological Examinations.—6,103 specimens were submitted to the Department of Bacteriology of the College of Medicine for examination. This is the highest number of examinations yet carried out in any year. Of these 2,157 were in respect of diphtheria, tuberculosis, and enteric fever, 2,613 were for venereal disease, 806 were of milk, 207 of water, and the remaining 320 were special investigations.

The **Disinfecting Stations** at Walker Gate, and at the Moor Hospital, dealt with 45,179 articles from the City and the Hospitals.

The total amount spent by the Health Department on chemical disinfectants (formalin, izal, etc.), only amounted to £28, of which £13 was for the Hospitals.

The **Venereal Disease** clinic at the Royal Victoria Infirmary, under PROFESSOR SIR ROBERT A. BOLAM, Chief Specialist Medical Officer, is shared with most of the other County Boroughs and with the County Councils of Northumberland and Durham, who bear the cost proportionately to the number of patients from their respective areas. The number of cases treated in 1928 was 1,016 (343 syphilis, 497 gonorrhœa, 8 soft chancre and 168 conditions not venereal). The attendances per case were 15·4 as against 17·5 in 1927. 35 per cent. of patients ceased their attendance before the completion of treatment.

Ophthalmia Neonatorum (inflammation of the eyes in the newly-born, and usually due to gonorrhœal infection from the mother) was notified in 70 instances, as compared with 58 in the previous year. All recovered completely.

There are 471 registered blind persons in Newcastle to-day, and of these 81 are stated to have been blind from birth, but only one of them is under five years of age, which may be considered satisfactory proof of the efficiency with which ophthalmia neonatorum is looked after.

The three Police Women attached to the establishment at the Central Police Station are employed chiefly as Matrons, but are available for patrol and other duties.

The **MATERNITY AND CHILD WELFARE** Section (under Dr. A. F. G. Spinks) has carried out its usual programme. The birth rate has risen slightly, and now stands at 19·2 per 1,000 population, as compared with 18·7 in 1927 and 33·4 in 1900—when it was already declining—and the proportion of babies which failed to survive until their first birthday has fallen to 82 per 1,000 births, which is the lowest rate on record in the City.

Diarrhœa, formerly a terrible scourge to infants every summer and autumn, when hundreds died, accounted in 1928 for 67 deaths, as compared with 42 in 1927. This slight increase in diarrhœa may have been the result of the rather finer summer than the previous one, but there was less bronchitis and pneumonia. Deaths among illegitimate children—the unwanted babies—were at almost double the rate of those born in wedlock. 62 per cent. of the deaths among all infants occurred in the first three months of life, and 74 per cent. of those in the first month.

43 per cent. of all deaths of children under one were the result of conditions affecting them before birth. During the past quarter of a century, whereas the death rate of babies from post-natal causes has declined to one-third of what it was previously, that from ante-natal influences shows nothing like the same improvement. These facts, while indicating that we are essentially on the right lines at the Welfare Centres in looking after the babies and *keeping them well*, demonstrate incontrovertibly the crying need for very much greater attention to the pregnant woman. This is borne out by the *maternal mortality* statistics, which, in spite of the greatly diminished birth rate, have undergone no decrease in Newcastle during the present century, and during the year under report have jumped up to 4·97 deaths per 1,000 births, which is in excess of the corresponding mortality for the whole country (4·11). Puerperal sepsis shares in this increase during 1928, it having been the cause of death in 1·66 mothers per 1,000 births, which is more than double the rate during the previous three years.

At the eleven welfare centres in the City there were 376 ante-natal medical sessions, and these were attended

4,284 times by 1,404, or one-quarter, of the individual mothers. It is most satisfactory that the popularity of these sessions continues to increase. Ante-natal consultations with a doctor are so important for the discovery in plenty of time before the confinement of any adverse circumstance or condition that the reluctance of any mother to comply with so obvious a precaution is scarcely understandable. It is a very gratifying result of the continual education by the Health Department, the Princess Mary Maternity Hospital and private practitioners that more and more expectant mothers do apply for medical supervision beforehand every year, and the figures quoted above do not include the very large further number of attendances at the ante-natal clinic at the Maternity Hospital, and the similar work done by the private doctors, none of whom having any claim to efficiency would willingly forego the procedure. The assurance of a proper medical examination, at least a month prior to the expected birth, for every mother would involve a large increase in the work done at the ante-natal centres, or if the prospective mothers could afford it, by private practitioners. It is suggested that the Health Committee consider the advisability of paying a fee to private doctors for this service in the case of poor women who cannot afford it themselves. This would not only increase the protection to the parturient, but would also have the result of lessening substantially the work falling upon the centres. If facilities could be provided for such examinations (by private practitioners), to be conducted at ante-natal centres, it would be of very great service, but it would necessitate the opening of the centres on additional days to the present ones, which are already taxed to capacity.

The health of many mothers, both prospective and actual, is gravely prejudiced by the unsound state of their teeth, and the same thing is found among even young children, so that a further development of the welfare centres is indicated, by the provision of dental clinics, as has already been done by the Education Committee for the school children.

Chances of survival vary considerably in different parts of the City. Thus in Armstrong Ward there was an infantile mortality rate of 115 per 1,000 births, whereas in St. Thomas' it was only 35. Birth rates and infantile death rates do not exactly correspond, but as a rule there is a rough parallelism, the high birth rate being usually accompanied by a high infantile mortality, and the high birth rates occur most commonly among the poorest and most crowded populations.

Confinements were attended, as previously, in about equal proportions by medical practitioners, by midwives, and by the Princess Mary Maternity Hospital. The midwives conduct the great majority of the simple uncomplicated cases, sending for medical help when anything abnormal arises. The Princess Mary Maternity Hospital takes charge of most births in the poorest sections of the community, including very many of the difficult and complicated labours, many of which are also sent in to the Hospital from outside districts.

There were 46 practising midwives in the City, four only remaining of those registered as having been in *bona fide* practice before the passing of the Midwives Act.

Doctors were sent for by midwives on account of complications or emergencies in 392 instances. Arising out of these there were 242 claims from doctors for fees amounting to £360, and one from a midwife for 17s. 6d.

under the Midwives Act, 1918. Each case was closely investigated before payment was approved.

The midwives receive regular supervision and tuition by the Superintendent of Midwives (MISS GEORGINA B. CAMERON).

The Departmental Committee on Maternal Mortality is inquiring very thoroughly into the causation of the wastage of valuable lives, with a view to making recommendations for preventive measures. From the evidence that has so far accrued it is very plainly shown that one serious cause of trouble to the lying-in woman is the lack of satisfactory nursing during and following her confinement. There is between midwives and doctors a certain degree of professional rivalry, so that there is a strong disposition shown by many doctors to employ untrained women as maternity nurses, themselves conducting the actual labour and taking full responsibility. This is not as it should be, and there is no question that it would be very much to the advantage of the patients if a properly trained midwife were in attendance upon every confinement as well as a doctor. The majority of women who employ a midwife alone and not a doctor, do so because they cannot afford both, so that it becomes a matter for grave consideration whether or not some arrangement should be come to whereby provision might be made, either through the National Health Insurance Act, or otherwise, as part of the municipalities' obligations under the Maternity and Child Welfare Act, for lying-in women to have this most necessary assistance. In Newcastle we have hitherto prided ourselves upon having a maternal mortality lower substantially than that of the country generally. Let us hope that this condition will continue in the future, but the figure for the year under report is most disquieting. It is noteworthy that although certain provision is made for the supply of expert advice and assistance to patients suffering from puerperal pyrexia or puerperal fever following childbirth, nothing has been done as yet to make similar provision for the woman during her actual confinement. There is in existence a scheme by which packages of obstetric requirements (cotton wool, towels, sheets, etc.), are kept at the ante-natal Centres and sold to prospective mothers at 6s. 2d. and 3s. 1d., according to their contents. This arrangement is not as largely made use of as it might be, and it would be a real advantage if provision could be made whereby it would be ensured that women living in poor homes amid not too cleanly surroundings should have the protection of sterile sheets and dressings at their critical time. These are matters that should receive early and serious thought, as should also the extension of the services at the ante-natal centres for the prospective mother before the birth of her child to a similar service for the detection and remedy of injuries or defects, the result of the recent birth.

Owing to the unemployment everywhere dried milk continued to be distributed free and at cost price, only the very poorest receiving supplies gratis. Even so, this amounted to 30 tons (equal to 41,700 gallons of fresh milk), which was distributed among 2,166 babies, while coupons for about 15 tons of dried milk at cost price were given for 1,025 babies. Only mothers attending the welfare centres with their infants were assisted in this way, 33 per cent. of them receiving free milk and 16 per cent. coupons for the cost price article.

At the eleven welfare centres 1,095 medical sessions for mothers and babies were held. 6,532 babies attended these, on an average more than eight times each, the average attendance at each session being 49·3, which is many more than can be satisfactorily dealt with by the medical staff. There is urgent need for provision of more medical sessions to cope with the requirements.

The thirty or so regular *voluntary workers* are a great asset. They undertake for the most part the non-medical work of the centres, supervising the sewing meetings, giving lessons in simple cooking, and housewifery, and so forth, and, of particular importance, conducting nursery schools or modified play centres for toddlers weekly at St. Peters and Diana Street centres. The voluntary workers not only do valuable work, but have not spared themselves in affording financial assistance to poor mothers for such purposes as artificial teeth, clothing, etc., and have been the means of sending mothers with their babies to a convalescent home.

Mrs. Hereward Brackenbury's resignation, owing to her removal from the City, took place in October. Mrs. Brackenbury had been intimately associated with child welfare almost since its first inception in Newcastle about twenty years ago, under the Mothers' and Babies' Welcome Society, and became a co-opted member of the Maternity and Child Welfare Committee of the Corporation when it was first formed in 1918. The Health Committee not only expressed their warm appreciation of her long and devoted services to the mothers and babies, but this was also the subject of a resolution by the City Council.

The Health Department and the Princess Mary Maternity Hospital continue to work in the closest relationship, both aiming at the same results, each being complementary to the other. This Hospital fulfils functions which are vital to the very life of the City, and the comparatively recent enlargement of its scope is already far below what is required to meet the urgent claims upon its assistance. Besides the direct care of the lying-in woman, the hospital is also one of the largest and most complete midwifery training schools in the country for both medical students and midwives.

The *Babies' Hospital and Mothercraft Centre* in West Parade has quite settled down to the performance of functions of the highest value. It undertakes the treatment of wasting babies and those suffering from chronic conditions for whose prolonged occupation of beds accommodation is not available in other institutions. With its keen staff, enthusiastically interested in the scientific aspect of conditions which are not too well understood, and in the training of children's nurses, the Hospital, which was originally merely a crèche, meets a real need.

The *Newcastle Day Nursery* in New Bridge Street has continued its useful functions, also in co-operation with the Department.

The *Hostel for Unmarried Mothers* in Osborne Road has been compelled to close down through lack of support.

Under the *Nursing Homes Registration Act, 1927*, there have been registered 4 private institutions accommodating women for confinement only, and 15 for maternity, medical and surgical purposes. Two homes were exempted under Sections 6 and 7 of the Act.

Inspection and re-inspections are carried out for the Medical Officer of Health, by the Maternity and Child Welfare Medical Officer and the Chief Health Visitor, and the assistance of the Chief Constable has also been sought and obtained in regard to the facilities possessed by the homes for preventing, quelling and escaping from fire. All the homes are of satisfactory type, and are well conducted.

TUBERCULOSIS.—Although the year 1928 has seen so high a level of industrial depression, the death rate for tuberculosis of all forms declined still further, so that it was the lowest yet recorded in Newcastle. This applies both to the pulmonary form (1·05 per 1,000 population) and the non-pulmonary (0·27 per 1000 population). There were four more notifications (508) of cases of the pulmonary form of the disease than in 1927, and ten more (280) of cases affected by tuberculosis in other parts of the body than in 1927, which saw the previously lowest recorded number, so that on the whole we can consider that progress, while slow, as is only to be expected in such hard times, is still being maintained in the gradual conquest of the so-called white scourge. Tuberculosis is to a large extent an economic disease, and is very dependent upon prosperity. This governs not only the supply of adequate food, but environmental conditions, more particularly housing. A shortage of nourishment is usually followed in about a couple of years by an increase in the number of cases and deaths, an experience which we in Newcastle have not had, although the period of depression has lasted considerably more than that time. It may be anticipated that the trade improvement which we are now beginning to experience will be followed by a gradually increasing drop in the number attacked.

As was well brought out in the social survey made for the Bureau of Social Research in 1928 by Dr. Henry A. Mess, Newcastle, almost alone of the Local Authority districts on Tyneside, has managed to maintain its position in this respect, in spite of the adverse circumstances of the time, and undoubtedly we owe our position, to some extent at least, to the energetic measures adopted by the Health Committee for ameliorating the conditions which favour the disease and lower the power of resistance. Practically everybody acquires infection by the tubercle bacillus at some time or other, and the vast majority of individuals are able to overcome it. Newcastle's position, as compared with the rest of the country, is unsatisfactory, but it is still the best on Tyneside. The disease in this part of the world is relatively of severe type, and of rapid advance. This results in the unfortunate fact that very many of the patients do not resort to a doctor until the condition is so well established as to make cure very difficult. Thus, while the beds at the City Hospital, Walker Gate, which are reserved for the more advanced cases are constantly fully occupied, and have recently been increased by the addition of a new pavilion, many of the beds at Barrasford Sanatorium, which are intended for those in the earlier and more hopefully curable stages, remain vacant, and have to be filled by patients who would otherwise not be admitted to them. The accommodation at Walker Gate which makes possible the removal of infectious sufferers from their homes, is by no means the least valuable of the factors which have enabled a check to be maintained upon the ravishes of consumption, by limiting its spread to the previously unaffected, many of whom but for this would almost certainly be unable to withstand attack. The City's improved housing, and the policy adopted by the Housing Committee of preferential allocation of decent homes to families who have already suffered from tuberculosis, or whose circumstances render them particularly liable to attack, is a far-seeing and public spirited one that deserves the highest commendation.

The Dispensary deals with all notified cases, acting as the clearing house for them, and relegating them to the appropriate institutions and keeping in touch with them, whether in Sanatorium or receiving home treatment by their private doctors, who furnish periodic reports of progress. The other members of patients' households are brought up to the Dispensary by the tuberculosis nurses for overhaul, so that many early cases are discovered before they are aware that they are ill, and are thus given the best chances of cure.

On return from Sanatorium, or in the case of a patient treated at home, the *Voluntary Tuberculosis Care Council*, which includes the Chairman of the Health Committee and of the Tuberculosis Sub-Committee, and the Medical Officer of Health and the Tuberculosis Medical Officer, renders that much-needed help, without which the Corporation's unaided scheme would be futile. The Health Committee makes a grant to this body, which undertakes essential work that the Health Committee is not itself permitted to do.

It is anticipated that the preparations for the provision of occupational therapy at Barrasford Sanatorium will be completed shortly, and that the scheme will be actively functioning before the end of the present summer.

The average duration of life after the commencement of illness of fatal cases of pulmonary tuberculosis was about four years seven months in adult males, three years and four months in adult females, and thirteen months in children. This shows an increase on previous years, and indicates that cases are coming rather earlier under medical care. The period between notification and death was only, on an average, 20·9 months. 87 per cent. of the patients who attended the Dispensary and who died in 1928, had at one time or another been afforded institutional treatment in Sanatorium or Hospital—a very high proportion.

With bad housing there is increased tuberculosis. Thus, for the ten years 1919-1928 the death rate in All Saints' Ward was 2·10, and for St. John's 1·91 per 1,000 population, whereas in Jesmond and St. Thomas' Wards the rates were only 0·74 and 0·84. The Tuberculosis Medical Officer reports all insanitary conditions in connection with the homes of patients to the Senior Sanitary Inspector, who effects whatever improvements are possible.

The average stay of patients in the 30 beds leased at *Stannington Sanatorium* for children was 210 days for boys and 248 for girls. The number of beds available there is not nearly sufficient for the needs of the City. Of the 46 patients, 18 were improved, one died, and in the remainder the disease was rendered quiescent.

At *Barrasford Sanatorium*, the Medical Superintendent (Dr. C. G. R. Goodwin) reports that 51 of the 90 beds have been in constant occupation by Newcastle cases, and 127 of the 202 total admissions were from the City. The stay in the Sanatorium averaged 133 days, which is not nearly long enough to ensure a cure, or even quiescence. All types of treatment are in use for the appropriate cases ; the great majority improved, but quiescence of the disease was only obtained in those who had no tubercle bacilli in their sputum (pleural effusion and early cases), the stay of the others not being nearly sufficient. Rest remains the principle of prime importance to the tuberculosis patient, and ensurance of this is undoubtedly simplified by the remoteness of Barrasford Sanatorium from the City and from the patients' friends.

The large amount of work at the Sanatorium causes the Medical Superintendent to be constantly at work all day and every day, and there is great need of assistance to him, which also will involve the provision of the necessary accommodation for another doctor.

Additions were made during the year to the bathing and sanitary accommodation, but the housing of the nursing and domestic staff urgently requires amplification, owing to the overcrowding, discomfort and inconvenience resulting from the substantial increase in the number of patients maintained.

Owing to the annual cutting off of the supply of water from the Water Company's pipe line for necessary cleansing, and the gradual failure of the Institution's own well, with the resultant severe shortage of water for a period of about six weeks each Spring, serious inconvenience and actual hardship are experienced, and call for early remedy.

The bad state of the teeth of many of the patients is the cause of a large amount of preventable ill-health, and it is proposed to ask the Committee to sanction the establishment of a periodical dental clinic at the Sanatorium.

122 of the pulmonary cases were very much improved in general health, and the two non-pulmonary cases also justified their treatment. It is highly encouraging to note Dr. Goodwin's remark that the type of case received is gradually improving, and that the patients who show on admission clear evidence of healing in their lungs, thus indicating considerable natural

resistance to the disease, suggest an improvement in the severe type which characterises the disease in this area.

In Barrasford Sanatorium the Health Committee possesses an Institution which compares exceedingly favourably in management, cost, and in true results, with any other sanatorium in the kingdom.

The *Advanced Case Hospital,* at Walker Gate, admitted 267 patients, of whom 167 were males and 100 females. The average length of stay was, as in Barrasford also, about four months. 155 of the patients improved considerably, 19 of them to the extent of being passed on to Barrasford Sanatorium for treatment; 43 left without improvement, and 72 died in Hospital. Every effort is made to apply the most suitable treatment to each case, and the Hospital is well equipped for the purpose.

The *Open Air School* at Pendower is still the only institution of the kind provided by the Education Committee. It effects a most valuable public health service, and could with great advantage be repeated in other parts of the town. All new schools are now constructed on much more healthy plans than in the past, admitting a great deal more fresh air than most of the children obtain in their own homes. This is bound to react to the benefit of the scholar's health and physique. The *Dental Clinics* of the Education Committee are doing excellent work in that they heal dangerous gaps in the defences against access of the tubercle bacillus.

FOOD AND PROVISIONS.—376 samples of milk were examined for the presence of tubercle bacilli, which were found in 14 of them, equivalent to 3·7 per cent. This is the same percentage as in the previous year, which was the lowest recorded since 1919, excepting that for 1924, which was 3·2 per cent. This time the tuberculous samples were all found among milks from the County of Northumberland, there being none at all from Cumberland, which points to a much closer supervision of herds and systematic inspection there. Three of the samples were obtained in succession from a single farm, and two from another, as it was not possible to discover the diseased animals in each of these cases for some time. Thus only eleven farms were actually implicated. The milking herds in Newcastle have all their cows inspected at least four times in the year by either the Chief or Assistant Veterinary Officer.

The graded milks that are sold under the Milk (Special Designations) Order, 1923, namely, "Certified" and "Grade A (Tuberculin-Tested"), are still being produced in a quantity that exceeds the demand, although this is steadily increasing, and with improving economic circumstances, it is confidently hoped will become very much greater. A careful estimate, based upon such figures as are available, places the total milk consumption of the City at 11,000 gallons daily, of which 70 gallons are "Certified," and 600 gallons are "Grade A (Tuberculin-Tested."). These two graded milks, which are from tuberculin-tested herds, thus amount to about 6 per cent. of the total sold. One large distributing firm opened a new dairy during the year, installing a model and very efficient plant for pasteurising all the milk received. At the same time, particular attention is paid to the bacterial content of the milk on arrival from the farms, which are all within the district surrounding the City.

The Veterinary Officer and Inspector of Provisions (Mr. Thomas Parker, F.R.C.V.S.), reports that there are now 19 cow-keepers occupying 31 cow sheds on 20 premises, with 308 milch cows, within the City. This is a decrease of 26 cows on last year's number. Within the City's boundaries is no place for the production of milk, but it has the advantage that the animals are kept under close supervision by the more adequate staff of an urban health department. Eight diseased animals were found during the frequent inspections, four of them being tuberculous.

There are 102 separate slaughter houses in 15 different localities in the City. The steady growth of business since 1925 has caused the cattle market to be crowded to its utmost capacity. The number of animals exposed for sale reached the highest figures for the last eight years. The demand upon slaughter house accommodation is considerably greater than the numerous killing shops within the City can cope with, and the structural and sanitary condition of many of these is bad almost beyond description.

The Health Committee has had before it several schemes for the provision of market and abattoir accommodation away from the centre of the City, and the greatest difficulty has been experienced by those responsible in finding a suitable site against which there is not an immediate outcry by persons interested, or who fancy themselves likely to be affected by use of the land for such a purpose. The proper inspection of carcasses is impossible at the present time, owing to the wide separation of the various slaughterhouses, and such a state of affairs is bound to affect seriously a trade that used to be a prosperous one in Newcastle, and is only now regaining its supremacy.

The new Slaughterhouse Bye-laws came into force on the 1st April, 1928. The most noteworthy reform imposed by them is the imposition of humane methods of slaughter. These are now in pretty general operation in the City, the only reason that they have not been completely operative being due to some minor defect in the instrument used, which will be entirely rectified very shortly. 504 carcasses with 1,989 pounds of meat were seized and condemned during the year, 33 per cent. being on account of tuberculosis.

295 food carrying vessels came to the Quayside during 1928, which is nine less than in 1927. All imported articles were kept under supervision by Mr. Parker and his staff.

Food and Drugs Adulteration Acts.—The inspector under the Food and Drugs Acts (Mr. C. Raimes) reports the taking of 1,157 samples for analysis, including 847 of milk. Of the latter 546 were rough tested in the Health Department, and appeared to be genuine. Of the remaining 301 the Public Analysts (Dr. J. T. Dunn and Mr. H. C. L. Bloxam) found 54 to be below the minimal limits fixed by the Sale of Milk Regulations, 1901. Of the 310 samples of food and drugs other than milk, 13 were found to be " not genuine," and one was " doubtful."

54 milk cases were dealt with. 17 were taken to Court ; convictions were obtained in 13 of them, with fines aggregating £19 10s. 0d. Cautions were issued by the Health Committee in respect of 27, and no proceedings were taken in 10 cases.

12 samples of condensed milk were taken under the Public Health (Condensed Milk) Regulations, 1923, and all of these complied with the requirements.

189 samples of milk were examined for evidence of excremental pollution, which was found present to an undesirable degree in 30 (or 15·9 per cent.), as compared with 40·4 per cent. in 1927 and 45·8 per cent. in 1926. The great proportion of dirty milks were found between May and October, when 28 per cent. were adversely reported upon. The results in 1928 showed an immense improvement in this respect, indicating greater care in cleanliness during milking operations, in cleansing the milk vessels, and in the method of transport. In fact, it was found that no less than 70 per cent. of the ordinary milk supply of the City was up to " Grade A " standard. This is the most satisfactory progress that has yet been experienced.

Over 23,000 empty churns were examined on the railway stations in course of return to the farmers, and only 20 of them (0·09 per cent.) were found not to have been rinsed out. There were examined in addition to the foregoing 4,621 empty churns passing through Newcastle in course of transit to the farms from retailers outside the City. None of these were found unrinsed. In every instance of defect the responsible retailer within the City was communicated with, and the result of the warning proved very satisfactory in each instance. This requirement, which met with considerable opposition by retailers when first adopted in Newcastle, it is very unusual to find neglected, and is now the law for the whole country.

The Agricultural Department of Armstrong College is continuing very actively its assistance to dairy farmers by means of visits and instruction, and has also continued its classes upon this particular subject for sanitary inspectors. Milk traders are being brought more and more closely under supervision, and the conditions under which the trade is carried on are steadily improving.

The ice-cream trade has been maintained under supervision, and permits to manufacturers to sell are given by the Health Department. A number of applicants were refused during 1928 for sanitary reasons, and there are 130 premises licensed for manufacture, as compared with 115 in 1927, and retailers have increased from 181 to 192. Since this mode of control was adopted in Newcastle many years ago, there has been no infectious disease conveyed by ice-cream in the City. Greater stringency, however, is desirable, particularly as regards hawkers of ice cream.

Four offences against the Public Health (Preservatives, etc., in Food) Regulations, 1925-1927, were detected. Cautions were administered in all four cases.

Restaurant kitchens (which include hotels, cafés and dining rooms, and number 118), together with margarine warehouses and fried fish shops, have been regularly inspected. Restaurant kitchens are inspected as " work places," and as they also come within the scope of the Public Health (Meat) Regulations, 1924, the Veterinary Officer, working in conjunction with the Inspector of Workshops, has also been able to effect certain improvements.

187 samples of water were examined for the presence of bacillus coli as indicative of excremental pollution, animal or human. 113 were characterised by the Bacteriologist as satisfactory, 47 as fair, and 27 as unsatisfactory. The proportion of unsatisfactory samples was still too high, and has been met by a further development of sand filtration and chlorination.

There are eight **Swimming Baths** in the City, of which five are equipped with a continuous system of filtration and aeration (Royle's or Turnover), and three depend for cleanliness upon the complete changing of the water as frequently as appears necessary, twice or three times a week.

Bacteriological examinations show that the bacillus coli, which is characteristic of animal pollution, is usually present to the extent of less than 10 per cubic centimetre in the former class, and is often above 50,000 per cubic centimetre in the non-filter baths. Not only does the installation of the filtration plant therefore effect a substantial economy in the cost of water, but it adds enormously to the cleanliness of the bathing pools and to their safety for their users

The new Northumberland Road Baths are equipped not only with filtration and aeration plant, but in addition there is an arrangement by which the water is also chlorinated, thus being doubly safeguarded against transmitting disease germs to the bathers.

Bread baking is still carried on in 98 domestic bakeries, where small quantities are made and sold to people living round about. There is nothing to prevent this being done, and on the whole the conditions are pretty good, but it is not desirable that bread should be baked for sale in what is practically part of a dwelling house.

THE HOUSE AND THE WORKPLACE.—Nuisance Abatement.—The Senior Sanitary Inspector (Mr. C. Raimes) dealt with 13,075 nuisances, which is 1,788 more than in 1927. In connection with these 6,655 notices were served, and in all but 28 instances were effective without legal proceedings.

There is still much overcrowding in the City, particularly in the poorest type of house. Very little relief has been afforded to occupiers of this kind of property by the Corporation Housing Schemes, though these have undoubtedly done much to ameliorate the home conditions of the less affluent artisans and clerical classes.

493 dry closets have been removed, with 61 dry ashpits, at the owners' expense, the rate of conversion having been somewhat slower than in 1927, when 713 were dealt with. There now remain in the City 1,467 conservancy closets, most of them being in the Byker and Walker areas. The facts that land is leasehold in Walker, and that many of the leases have only a short time to run, make it somewhat difficult to induce owners to effect structural improvements.

Atmospheric Pollution.—802 observations were made of 106 industrial chimneys, twelve only of which showed excessive output of smoke on 20 occasions. 38 informal notices were served upon occupiers of premises whose chimneys were seen to be giving off "black" or "excessive medium" smoke. Two statutory notices under the Public Health Smoke Abatement Act, 1926, were served upon the owners of a laundry to prevent the emission of grit in one case, and "black" smoke in the case of the other, a brewery. Abatement resulted from the use in both instances of a better quality fuel, together with more careful stoking. As already stated, there has been a great improvement among the Corporation's own chimneys, which were among the worst offenders.

The readings of the three atmospheric pollution gauges in Newcastle, and the sunshine records have already been referred to on page 13.

Housing.—994 new houses were erected during the year, 588 in Corporation schemes and 406 by private enterprise. At the end of the year there were 872 in course of erection by the Corporation. Of the Corporation houses 83 were " compensatory " for houses demolished under improvement schemes. Since the War the Municipality has built 4,655 houses, and private enterprise 2,582.

In 1928 the death rates were 17·1 per thousand in St. John's Ward, and 14·7 in Stephenson, where congestion is great, as compared with 9·3 in Fenham, and 10·8 in Dene and Heaton Wards, where the density of the population is less. The attack rate per thousand population of pulmonary tuberculosis was 3·32 in Armstrong Ward, and 1·09 in Jesmond. Approximately 34 per cent. of the population live in one and two-roomed houses, yet over 46 per cent. of the deaths from consumption were in this class of dwelling. In Armstrong Ward 115 babies under one year of age died to every 1,000 born, and in St. John's 113, whereas in Jesmond the rate was only 46, and in Fenham 50.

Over a period of 21 years the deaths of babies in one-room, two-room and three-room houses have been 129, 116, and 96 per thousand births respectively.

Procedure in dealing with insanitary areas is most disappointingly slow. The Insanitary Property Sub-Committee is still faced with preliminaries to condemning Elswick East Terrace, but it is hoped that these will be completed very soon now.

A definite attempt was commenced to get rid of the growing population of dwellers in caravans and similar structures, which by squatting in places such as yards, vacant plots, and so on, quite unsuitable and lacking all sanitary necessaries, were creating nuisances wherever they appeared. Partly through legal limitations and shortage of houses, and largely on account of the great part played by sentiment in all such evictions, progress has been very tardy, but has now become much more satisfactory.

Two additional Inspectors were appointed in June to enable the staff to carry out more adequately the Tenement Bye-laws. The impulse which this work received resulted in rapid congestion of the Town Clerk's Department, already suffering from the plague of overwork, to meet which certain measures have been adopted by the Council.

The *common lodging houses* have been rather less occupied during 1928 than for some time past, which has been attributed by the keepers to the fact that the Guardians have withdrawn relief to men living in such houses. Six houses were closed and removed from the register. One application was received for registration of a new house, a hostel for Norwegian sailors. At the end of the year there were 38 houses on the list.

Factories and Workshops, Offices, Places of Amusement and Schools.—8,751 inspections of factories and workplaces were made, and 287 notices to remedy defects were served. The homes of outworkers were also kept under observation.

Special attention has been paid to the condition of *cinemas and theatres* by the Senior Sanitary Inspector, who uses the Kata-thermometer to estimate the efficiency of ventilation. 35 places, involving 73 separate tests, were visited, and the result showed a little improvement upon those previously made ; whilst last year of the 34 tested 21 came to within a few points of the required standard, this year 22 reached it, and are termed " first-class," the " second-class " remaining the same. This result is considered fairly satisfactory.

The **Temperance Festival** was held as usual in June, in wet weather, with a large concourse of people. From the public health aspect the great fair was well managed, the sanitary accommodation being adequate, and the ice-cream, milk and food stuff retailers were kept under close control.

NEW LEGISLATION.—The Nursing Homes Registration Act, 1927, came into force on 1st July, 1928.

The Agricultural Produce (Grading and Marking) Act, 1928, became effective in August of the same year. One of the most important provisions is that all premises used for cold storage or chemical storage of eggs must be registered, but only one application has been made under this head. Regulations have been issued under this Act dealing with grading and marking of eggs produced in England and Wales, and they also provide for the marking of preserved eggs. The Merchandise Marks (Imported Goods) Order, 1928, provides for the marking with an indication of the country and origin of imported goods of certain classes, but does not come into force until 1929.

The Food and Drugs Act, 1928, consolidates and amends previous legislation on the subject, and came into operation on January 1st, 1929.

POPULAR EDUCATION.—Numerous lectures and addresses upon public health subjects were given by the medical staff to social bodies of various kinds in the City, but no organised Health Week was held.

OBITUARY.—The Health Committee—both members and staff—has to deplore the death of Alderman Adam Wilson, J.P., F.R.C.S., which occurred on 8th December, 1928. Dr. Wilson was elected Councillor in June, 1885, and Alderman in November, 1904. He became Chairman of the Health Department Sub-Committee of the Sanitary Committee, afterwards renamed the Hospitals Sub-Committee, in 1893, a position which he retained until the end. On various occasions he was offered the Chairmanship of the Sanitary Committee but always declined it.

Alderman Wilson was a gentleman of the older school, deliberate and courteous, and considerate to all. His long experience and knowledge of the work of the Department rendered him peculiarly valuable to its officers, in that he understood their difficulties, sympathised with them, and was always most ready to help them. His public interests were exceedingly wide, and he served on a multitude of Committees. Athough he had reached the advanced age of eighty, he retained his faculties to the end, and conducted a large and busy private practice until within a few days of his death.

Few men hold the respect and affection of their colleagues to such an extent as did Dr. Wilson, and by his death, the public life of the City has suffered a real loss.

The work of the Health Department throughout the year has been heavy, but has suffered no check, owing to the " team " spirit that actuates the staff, whose loyalty in all things it is a real pleasure to experience. The confidence reposed in their officers by the Health Committee is by no means the least of the advantages which the Department enjoys, and of this, and the ready support and active co-operation always accorded it, grateful acknowledgment is made.

I have the honour to be, Sir,

Your obedient servant,

H. Kerr.

M.D.,
Medical Officer of Health.

Health Department,
Town Hall,
Newcastle-upon-Tyne,
9th July, 1929.

CITY AND COUNTY OF NEWCASTLE-UPON-TYNE.

Health Report, 1928.

I.—GENERAL.

MORTALITY TABLES,
SOCIAL CONDITIONS, CLIMATOLOGY,
WATER SUPPLY, DISPOSAL OF REFUSE.

CITY AND COUNTY OF NEWCASTLE-UPON-TYNE.

Population, Birth Rate, and Special Mortality Rates during the period of the Notification of Infectious Diseases.

Year.	Population.	Births.	Birth Rate.	Infantile Mortality per 1,000 Births.	Puerperal Sepsis.			Total Maternal Deaths.		Zymotic Death Rate.	Diarrhoea and Enteritis (All Ages).		Smallpox.					Typhus.		Enteric Fever.					Diphtheria.					Scarlet Fever.					Erysipelas.					Measles. **			Whooping Cough.		Cancer.		Tuberculosis. Respiratory System.				Tuberculosis. Other Forms.				Tuberculosis. Total.				Year.
					Number of Cases Notified.	Number of Deaths.	Death Rate per 1,000 Births.	Number of Deaths.	Death Rate per 1,000 Births.		Number of Deaths.	Death Rate per 1,000 Population.	Cases Notified.	Number of Deaths.	Case Mortality per cent.	Death Rate per 1,000 Population.	Attack Rate per 1,000 Population.	Cases Notified.	Number of Deaths.	Cases Notified.	Number of Deaths.	Case Mortality per cent.	Death Rate per 1,000 Population.	Attack Rate per 1,000 Population.	Cases Notified.	Number of Deaths.	Case Mortality per cent.	Death Rate per 1,000 Population.	Attack Rate per 1,000 Population.	Cases Notified.	Number of Deaths.	Case Mortality per cent.	Death Rate per 1,000 Population.	Attack Rate per 1,000 Population.	Cases Notified.	Number of Deaths.	Case Mortality per cent.	Death Rate per 1,000 Population.	Attack Rate per 1,000 Population.	Cases Notified.	Number of Deaths.	Death Rate per 1,000 Population.	Number of Deaths.	Death Rate per 1,000 Population.	Number of Deaths.	Death Rate per 1,000 Population.	New Cases Notified.	Number of Deaths.	Death Rate per 1,000 Population.	Attack Rate per 1,000 Population.	New Cases Notified.	Number of Deaths.	Death Rate per 1,000 Population.	Attack Rate per 1,000 Population.	New Cases Notified.	Number of Deaths.	Death Rate per 1,000 Population.	Attack Rate per 1,000 Population.	
[illegible]	[illegible]	[illegible]	[illegible]	168	7	1	[illegible]	[illegible]	?	4·1	105	0·68	493	60	12·2	0·39	3·2	96	24	216	42	19·4	0·27	1·41	29	11	37·9	0·07	0·19	1,152	124	10·8	0·81	7·5	Not Notifiable.	?	..	?	..	..	209	1·36	51	0·33	?	?	..	?	?	..	..	?	?	..	..	?	?	..	1883
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	16	9	[illegible]	42	[illegible]	3·2	182	1·15	174	12	7·0	0·07	1·1	17	6	260	47	18·1	0·30	1·65	76	16	21·0	0·10	0·48	2,167	156	7·2	0·99	13·7		10	..	0·06	..	..	15	0·09	85	0·54	73	0·46	..	329	2·08	..	..	176	1·12	..	..	505	3·20	..	1884
[illegible]	[illegible]	[illegible]	[illegible]	174	11	4	[illegible]	31	[illegible]	4·3	128	0·79	70	3	4·3	0·02	0·43	9	7	253	56	22·1	0·35	1·58	93	26	28·0	0·16	0·57	1,227	83	6·8	0·51	7·6		16	..	0·10	..	..	359	2·22	49	0·30	64	0·40	..	368	2·28	..	..	138	0·86	..	..	506	3·13	..	1885
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	14	11	[illegible]	41	6·72	2·4	161	0·97	5	..	..	..	0·03	1	..	205	34	16·6	0·21	1·27	73	19	26·0	0·11	0·44	1,004	45	4·5	0·27	6·1		12	..	0·07	..	..	42	0·25	102	0·62	81	0·49	..	362	2·18	..	..	155	0·94	..	..	517	3·12	..	1886
[illegible]	[illegible]	[illegible]	[illegible]	174	10	4	[illegible]	20	4·74	3·1	127	0·75	7	..	..	..	0·04	37	4	325	42	12·9	0·25	1·92	90	31	34·4	0·18	0·53	1,208	38	3·1	0·22	7·1		19	..	0·11	..	..	211	1·24	71	0·42	77	0·45	..	341	2·01	..	..	167	0·98	..	..	508	3·0	..	1887
[illegible]	[illegible]	[illegible]	[illegible]	158	[illegible]	3	[illegible]	14	2·33	1·3	100	0·57	..	..	..	..	..	4	1	122	23	18·9	0·13	0·70	97	33	34·0	0·19	0·56	749	24	3·2	0·14	4·3		5	..	0·03	..	..	10	0·06	64	0·37	115	0·66	..	348	2·00	..	..	136	0·78	..	..	484	2·78	..	1888
[illegible]	[illegible]	[illegible]	[illegible]	175	2	2	[illegible]	24	3·92	2·8	245	1·37	..	..	..	..	..	7	2	136	19	14·0	0·11	0·76	96	30	31·2	0·17	0·54	601	30	5·0	0·17	3·4		13	..	0·07	..	..	94	0·53	129	0·72	73	0·41	..	387	2·18	..	..	214	1·20	..	..	601	3·38	..	1889
[illegible]	[illegible]	[illegible]	[illegible]	168	4	3	[illegible]	[illegible]	4·56	1·9	184	1·01	4	..	..	..	0·02	17	3	198	35	17·7	0·19	1·08	181	44	24·3	0·24	0·99	613	26	4·2	0·14	3·3		25	..	0·14	..	..	7	0·04	80	0·44	92	0·50	..	383	2·10	..	..	186	1·02	..	..	569	3·12	..	1890
[illegible]	[illegible]	[illegible]	[illegible]	173	5	2	[illegible]	[illegible]	4·40	2·5	112	0·60	..	..	..	..	..	19	2	134	24	17·9	0·13	0·72	121	42	34·7	0·22	0·65	785	39	5·0	0·21	4·2		11	..	0·06	..	..	128	0·68	179	0·96	107	0·57	..	398	2·13	..	..	259	1·39	..	..	657	3·52	..	1891
[illegible]	[illegible]	[illegible]	[illegible]	170	7	2	[illegible]	41	6·23	1·5	114	0·60	4	1	25·0	0·00	0·02	..	..	97	14	14·4	0·07	0·51	156	41	26·3	0·22	0·82	963	29	3·0	0·15	5·1		8	..	0·04	..	..	67	0·35	75	0·40	105	0·56	..	409	2·15	..	..	204	1·08	..	..	613	3·23	..	1892
[illegible]	[illegible]	[illegible]	[illegible]	174	4	2	[illegible]	[illegible]	5·74	2·4	196	1·02	25	..	..	..	0·13	3	2	141	25	17·7	0·13	0·73	171	28	16·4	0·15	0·89	693	23	3·3	0·12	3·6		8	..	0·04	..	..	208	1·08	33	0·17	123	0·64	..	347	1·81	..	..	190	0·99	..	..	537	2·78	..	1893
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4	1	[illegible]	[illegible]	[illegible]	2·0	124	0·63	2	..	..	..	0·01	..	..	164	30	18·3	0·15	0·84	112	27	24·1	0·14	0·57	826	27	3·3	0·14	4·2		7	..	0·04	..	..	94	0·48	149	0·76	116	0·60	..	370	1·90	..	..	167	0·86	..	..	537	2·74	..	1894
[illegible]	[illegible]	[illegible]	[illegible]	180	13	[illegible]	[illegible]	[illegible]	4·82	2·2	248	1·25	..	..	..	..	..	..	..	213	18	22·5	0·24	1·07	174	49	28·	0·25	0·88	959	26	2·7	0·13	4·8		3	..	0·02	..	..	140	0·71	57	0·29	141	0·71	..	406	2·05	..	..	218	1·10	..	..	624	3·15	..	1895
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6	[illegible]	0·71	[illegible]	4·03	1·9	175	0·87	..	..	..	..	..	..	..	176	33	18·7	0·16	0·87	164	34	20·7	0·17	0·82	896	23	2·6	0·11	4·4		6	..	0·03	..	..	133	0·66	95	0·47	142	0·71	..	401	1·99	..	..	206	1·03	..	..	607	3·02	..	1896
[illegible]	[illegible]	[illegible]	[illegible]	177	7	3	0·44	[illegible]	[illegible]	1·7	199	0·98	..	..	..	..	..	..	..	138	33	23·9	0·16	0·68	102	19	18·6	0·09	0·50	496	24	4·8	0·12	2·4		4	..	0·02	..	..	96	0·47	62	0·30	143	0·71	..	375	1·84	..	..	213	1·05	..	..	588	2·88	..	1897
[illegible]	[illegible]	[illegible]	[illegible]	180	2	..	[illegible]	[illegible]	[illegible]	2·4	187	0·90	17	3	17·6	0·01	0·08	..	..	307	66	21·5	0·32	1·48	89	27	30·3	0·13	0·43	692	26	3·8	0·13	3·3		5	..	0·02	..	..	125	0·60	145	0·70	174	0·84	..	412	1·99	..	..	163	0·79	..	..	575	2·78	..	1898
[illegible]	[illegible]	[illegible]	[illegible]	183	3	..	.	31	4·33	1·7	178	0·85	..	..	..	..	..	1	1	133	22	16·5	0·10	0·63	107	25	23·4	0·12	0·51	622	28	4·5	0·13	2·9		12	..	0·06	..	..	79	0·37	89	0·42	161	0·77	..	398	1·90	..	..	182	0·87	..	..	580	2·77	..	1899
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4	2	[illegible]	[illegible]	3·65	1·4	127	0·60	..	..	..	..	..	2	1	79	18	22·8	0·08	0·37	101	27	26·7	0·13	0·46	603	20	3·3	0·09	2·8	141	7	5·0	0·03	0·66	..	87	0·41	81	0·38	174	0·82	..	405	1·90	..	..	179	0·84	..	..	584	2·74	..	1900
[illegible]	[illegible]	[illegible]	[illegible]	175	3	1	[illegible]	[illegible]	3·47	2·2	384	1·78	25	1	4·0	0·00	0·12	2	..	76	12	15·8	0·06	0·35	146	36	24·7	0·17	0·67	1,389	42	3·0	0·19	6·4	135	11	8·1	0·05	0·63	..	68	0·31	105	0·49	214	0·99	..	428	1·98	..	..	168	0·78	..	..	596	2·76	..	1901
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1	1	0·14	[illegible]	5·37	1·6	103	0·47	13	1	7·7	0·00	0·06	1	1	57	8	14·0	0·04	0·26	133	21	15·8	0·10	0·61	1,382	59	4·3	0·27	6·4	179	10	5·6	0·05	0·83	..	137	0·63	98	0·45	197	0·91	..	357	1·65	..	..	168	0·78	..	..	525	2·43	..	1902
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7	4	[illegible]	[illegible]	[illegible]	1·1	192	0·88	155	9	5·8	0·04	0·71	3	..	75	9	12·0	0·04	0·35	147	36	24·5	0·17	0·68	1,175	31	2·6	0·14	5·4	191	9	4·7	0·04	0·88	..	12	0·06	52	0·24	200	0·92	..	371	1·71	..	..	201	0·93	..	..	572	2·64	..	1903
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	5	5	[illegible]	[illegible]	3·64	1·6	162	0·74	351	17	4·8	0·08	1·6	..	..	30	7	23·3	0·03	0·14	235	47	20·0	0·22	1·08	886	25	2·8	0·12	4·1	206	8	3·9	0·04	0·95	..	56	0·26	124	0·57	209	0·96	..	377	1·73	..	..	177	0·81	..	..	554	2·55	..	1904
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4	[illegible]	[illegible]	2·24	1·4	228	0·89	103	2	1·9	..	0·40	..	..	50	11	22·0	0·04	0·20	288	52	18·1	0·21	1·13	705	14	2·0	0·05	2·8	213	7	3·3	0·03	0·84	..	37	0·14	88	0·34	231	0·91	..	397	1·56	..	..	211	0·83	..	..	608	2·38	..	1905
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2	[illegible]	19	2·07	2·2	369	1·44	8	..	..	..	0·03	..	..	70	13	18·6	0·05	0·27	364	66	18·1	0·25	1·41	733	17	2·3	0·07	2·9	187	5	2·7	0·02	0·73	..	163	0·63	58	0·23	222	0·87	..	401	1·56	..	..	191	0·74	..	..	592	2·30	..	1906
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4	2	0·24	16	1·73	1·5	111	0·43	1	..	..	..	..	3	..	66	11	16·6	0·04	0·25	383	52	13·6	0·20	1·47	614	22	3·6	0·08	2·4	180	4	2·2	0·02	0·70	..	116	0·45	130	0·50	238	0·92	..	398	1·53	..	..	168	0·65	..	..	566	2·18	..	1907
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2·09	1·4	253	0·97	..	..	..	..	..	..	..	111	14	12·6	0·05	0·42	335	36	10·7	0·14	1·28	394	10	2·5	0·04	1·5	147	1	0·7	0·00	0·56	..	30	0·12	131	0·50	279	1·07	..	387	1·48	..	..	199	0·76	..	..	586	2·24	..	1908
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	11	[illegible]	[illegible]	27	3·12	1·3	128	0·49	..	..	..	..	..	6	..	74	19	25·7	0·07	0·28	456	58	12·7	0·22	1·73	844	34	4·0	0·13	3·2	169	2	1·2	0·00	0·64	..	112	0·43	70	0·27	264	1·00	..	344	1·31	..	..	173	0·66	..	..	517	1·97	..	1909
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4	[illegible]	[illegible]	24	2·02	1·2	153	0·58	3	1	33·3	0·00	0·01	10	..	63	9	14·3	0·03	0·24	443	40	9·0	0·15	1·67	574	12	2·1	0·05	2·2	182	4	2·2	0·01	0·69	..	87	0·33	79	0·30	286	1·08	..	331	1·25	..	..	180	0·68	..	..	541	1·93	..	1910
[illegible]	[illegible]	[illegible]	[illegible]	157	6	2	[illegible]	[illegible]	3·81	1·8	255	0·95	..	..	..	..	..	5	..	87	10	11·5	0·04	0·33	507	38	7·5	0·14	1·96	734	14	1·9	0·05	2·7	187	4	2·1	0·01	0·70	..	117	0·44	126	0·58	253	0·95	..	350	1·31	..	..	157	[illegible]	..	..	507	1·90	..	1911
[illegible]	[illegible]	[illegible]	[illegible]	161	7	[illegible]	[illegible]	[illegible]	4·03	1·4	86	0·32	..	..	..	..	..	..	..	91	15	16·5	0·06	0·34	501	33	6·6	0·12	1·85	1,184	34	2·9	0·13	4·4	161	7	4·3	0·03	0·60	..	164	0·61	38	0·14	255	0·95	972	358	1·33	3·61	From 1st February, 1913.	136	[illegible]	..	..	494	1·83	..	1912
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	11	[illegible]	1·67	23	3·08	1·3	186	0·69	..	..	..	..	..	..	..	124	15	12·1	0·06	0·46	368	28	7·6	0·10	1·36	955	20	2·1	0·07	3·5	175	8	4·6	0·03	0·65	..	64	0·24	98	0·36	276	1·02	796	326	1·20	2·94	450	153	[illegible]	1·66	1,246	479	1·76	4·6	1913
[illegible]	[illegible]	[illegible]	17·2	157	[illegible]	2	[illegible]	22	2·92	2·3	302	1·11	..	..	..	..	..	2	1	102	21	20·6	0·08	0·38	362	28	7·7	0·10	1·33	1,723	44	2·6	0·16	6·4	250	7	2·8	0·03	0·92	..	212	0·78	77	0·28	265	0·98	665	375	1·38	2·45	293	154	0·57	1·08	958	529	1·95	3·5	1914
[illegible]	[illegible]	[illegible]	*17·2	[illegible]	21	[illegible]	[illegible]	[illegible]	3·71	1·9	214	0·77	..	..	..	..	..	1	..	100	12	12·0	0·04	0·36	275	26	9·5	0·09	0·99	1,416	40	2·8	0·14	5·0	169	5	3·0	0·02	0·60	..	215	0·77	75	0·27	270	0·97	612	380	1·37	2·20	352	162	0·58	1·27	964	542	1·95	3·5	1915
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	22	[illegible]	1·10	37	[illegible]	1·1	152	0·55	..	..	..	..	..	..	..	76	10	13·2	0·04	0·27	272	28	10·3	0·10	0·98	728	24	3·3	0·09	2·6	191	6	3·1	0·02	0·74	3,192	67	0·24	78	0·28	266	0·96	642	417	1·50	2·30	345	140	0·50	1·24	987	557	2·00	3·5	1916
[illegible]	[illegible]	[illegible]	[illegible]	117	5	..	.	18	2·46	1·1	148	0·53	..	..	..	..	..	..	..	25	2	8·0	0·00	0·09	226	33	14·6	0·12	0·82	452	19	4·2	0·07	1·6	118	5	4·2	0·02	0·42	4,561	78	0·28	60	0·22	252	0·90	590	411	1·48	2·12	319	160	0·58	1·15	909	571	2·05	3·3	1917
[illegible]	[illegible]	[illegible]	[illegible]	167	10	[illegible]	[illegible]	21	3·25	1·0	123	0·44	..	..	..	..	..	..	..	29	2	6·9	0·00	0·10	250	23	9·2	0·08	0·90	426	11	2·6	0·04	1·5	102	4	3·9	0·01	0·37	1,660	33	0·12	119	0·43	225	0·80	552	393	1·41	1·98	267	138	[illegible]	0·96	819	531	1·90	2·9	1918
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	8	..	.	[illegible]	4·35	0·9	132	0·48	..	..	..	..	..	..	..	10	2	20·0	0·00	0·04	320	22	6·9	0·08	1·16	716	24	3·3	0·09	2·6	173	4	2·3	0·01	0·63	7,624	101	0·37	9	0·03	312	1·13	529	339	1·23	1·92	205	117	0·42	0·75	734	455	1·65	2·7	1919
[illegible]	[illegible]	[illegible]	[illegible]	161	12	5	[illegible]	27	[illegible]	0·9	131	0·46	..	..	..	..	..	..	..	10	2	10·0	0·00	0·03	348	24	6·9	0·08	1·22	1,282	20	1·6	0·07	4·5	246	6	2·4	0·02	0·86	2,727	42	0·15	45	0·16	244	0·92	593	368	1·28	2·07	244	121	0·42	0·92	837	489	1·71	3·0	1920
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	12	7	[illegible]	[illegible]	3·29	1·2	159	0·57	..	..	..	..	..	..	..	7	5	71·4	0·02	0·02	353	22	6·2	0·08	1·27	1,413	12	0·8	0·04	5·1	160	7	4·4	0·02	0·57	3,762	97	0·35	58	0·21	302	1·08	532	348	1·25	1·91	245	103	[illegible]	0·88	777	451	1·62	2·8	1921
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4·01	0·5	73	0·26	..	..	..	..	..	..	..	19	§5	21·1	0·02	0·07	254	15	5·9	0·05	0·90	663	7	1·1	0·02	2·3	159	4	2·5	0·01	0·56	542	9	0·03	36	0·13	302	1·07	495	322	1·14	1·76	280	100	[illegible]	0·99	775	422	1·50	2·7	1922
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	10	[illegible]	[illegible]	[illegible]	1·2	102	0·36	..	..	..	..	..	..	..	7	1	14·3	0·00	0·02	200	10	5·0	0·04	0·70	492	5	1·0	0·02	1·7	131	6	4·6	0·02	0·46	6,875	152	0·54	78	0·27	324	1·14	544	311	1·10	1·92	289	103	0·36	1·02	833	414	1·46	2·9	1923
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	15	[illegible]	[illegible]	15	[illegible]	0·7	81	0·28	5	..	..	..	0·02	..	..	28	3	10·7	0·01	0·10	256	7	6·6	0·06	0·89	805	4	0·5	0·01	2·8	152	3	2·0	0·01	0·53	3,504	61	0·21	29	0·10	358	1·25	540	322	1·12	1·89	272	99	0·35	0·95	812	421	1·47	2·8	1924
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4	[illegible]	18	[illegible]	[illegible]	86	0·30	81	1	1·2	0·003	0·28	..	..	15	3	20·0	0·01	0·05	187	7	3·7	0·02	0·65	1,196	14	1·2	0·05	4·2	193	5	2·6	0·02	0·67	6,030	114	0·40	76	0·27	374	1·31	546	343	1·20	1·91	303	101	0·35	1·06	849	444	1·55	2·9	1925
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	15	[illegible]	[illegible]	15	[illegible]	0·8	121	0·42	50	..	..	..	0·18	..	..	14	2	14·3	0·01	0·05	202	17	8·4	0·06	0·71	987	14	1·4	0·05	3·5	172	5	2·9	0·02	0·60	4,242	42	0·15	49	0·17	333	1·16	580	331	1·15	2·04	292	84	0·30	1·02	872	415	1·47	3·1	1926
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4	[illegible]	[illegible]	[illegible]	0·5	71	0·25	111	..	..	..	0·38	..	..	10	..	..	..	0·03	225	16	7·1	0·05	0·78	867	6	0·7	0·02	3·0	212	12	5·7	0·04	0·73	3,077	32	0·11	20	0·07	342	1·19	504	316	1·09	1·75	270	84	0·29	0·94	774	400	1·38	2·7	1927
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0·8	116	0·41	76	..	..	..	0·27	..	..	22	§5	22·7	0·02	0·08	262	8	3·1	0·03	0·93	596	2	0·4	0·01	1·8	234	19	8·1	0·07	0·83	4,160	56	0·20	50	0·18	420	1·49	508	295	1·05	1·80	280	77	0·27	1·00	788	372	1·32	2·8	1928

1883 to 1911 figures not corrected for cases belonging to other Districts.

x Calculated on population of [illegible]

* Civilians only.

§ 1 an inward transfer.

** Under the heading of Measles, Rubella is included from 1916 onward.

GENERAL STATISTICS.

POPULATION.—As estimated by the Registrar General at the middle of the year 1928—**281,500.**

Return Shewing the estimated Population of the Different Wards in the City, Acreage, Population per Acre, etc.

Ward.	Population (estimated)	Gross Area in acres	Less for Public Open Spaces in acres.	Nett Area in acres.	Population per acre, gross.	Nett.
St. Nicholas'	2,702	127	1	126	21	21
St. Thomas'	13,654	1,636	1,111	525	8	26
St. John's	15,082	169	1	168	89	90
Stephenson	18,414	215	..	215	86	86
Armstrong	15,349	178	31	147	86	104
Elswick	12,531	253	17	236	50	53
Westgate	15,002	90	1	89	167	169
Arthur's Hill	11,252	142	6	136	79	83
Benwell	18,225	550	27	523	33	35
Fenham	16,612	1,189	4	1,185	14	14
All Saints'	17,384	176	2	174	99	100
St. Andrew's	11,631	173	3	170	67	68
Jesmond	10,991	441	33	408	25	27
Dene	15,871	818	88	730	19	22
Heaton	15,230	225	27	198	68	79
Byker	17,182	140	..	140	122	122
St. Lawrence	17,607	181	7	174	97	101
St. Anthony's	15,500	601	5	596	26	26
Walker	21,281	1,149	34	1,115	18	19
City	281,500	8,453	1,398	7,055	33	40

INHABITED HOUSES.—**65,176** inhabited houses, which, on the estimated population, shows an average of 4·3 persons per dwelling.

RATEABLE VALUE.— **£2,449,923.** A penny rate produced £9,462.

SOCIAL CONDITIONS.—The principal **Trades and Occupations** are of a healthy nature, being generally engineering and machine making; conveyance of men, goods, and messages; building and works of construction, *e.g.*, ship building; and connected with ships and boats, sea-faring and harbour work; food, tobacco, drink, and lodging; coal and shale mines; and commercial or business occupations.

The amount of **Poor Law Relief** granted during the year ended 31st March, 1928, was £347,772 for outdoor relief, and £35,688 for indoor maintenance, making a total of **£383,460,** as compared with **£486,374** in the previous year.

The number of registered unemployed was 16,741 at the beginning of the year, and 19,248 at its close.

The City contains many **Hospitals** and other medical charities, but since wide surrounding districts are also served by them, figures as to patients treated are not of local value.

MARRIAGES.—2,195 marriages took place during the year, as compared with 2,248 in 1927, and 2,073 in 1926.

BIRTHS.—5,429, equivalent to a rate of 19·2 per 1,000 population.

DEATHS.—(All causes)—4,683, equivalent to an uncorrected rate of 16·6 per 1,000 population, and, after deduction of the deaths of 1,178 non-citizens, and addition of 179 Newcastle residents who died elsewhere, to a corrected rate of 13·1 per 1,000 population. In 1927 the death rate was 12·4.

17 deaths were uncertified (senile decay, 4; premature birth, 1; diphtheria, 1; infant debility, 4; hæmorrhage, 1; angina pectoris, 4; bronchitis, 2.

33 *Orders for Burial* (Newcastle-upon-Tyne Improvement Act, 1882, Sec. 47) were made, 11 being in respect of bodies lying in inhabited rooms, and 22 being cases from hospital.

Total Deaths during recent years from certain classes of Disease.

Classification in Table III. of Ministry of Health.

	Nervous System.	Circulatory.	Respiratory.	Digestive.	External Causes.
1912	410	435	603	204	152
1913	457	453	722	332	114
1914	448	505	863	465	142
1915	470	635	873	361	163
1916	477	448	856	281	117
1917	497	478	864	268	135
1918	498	503	957	252	135
1919	439	497	1,040	272	133
1920	384	534	861	275	124
1921	347	581	726	297	113
1922	363	689	913	181	92
1923	363	623	623	219	112
1924	376	667	749	206	110
1925	359	696	681	248	131
1926	335	742	596	220	158
1927	328	751	615	204	123
1928	331	796	480	247	153

INFANTILE MORTALITY.—447 infants died before completing the first year of life, representing a rate of **82** deaths per 1,000 births, the lowest on record.

ZYMOTIC DEATH RATE.—There were 237 deaths from the " Chief Zymotic Diseases "—smallpox, measles, scarlet fever, diphtheria, whooping cough, fever (typhus, simple continued, and enteric) and diarrhœa (all ages)—equivalent to 0·84 deaths per 1,000 population.

TUBERCULOSIS.—372 persons died from various forms of tuberculosis, 295 being from pulmonary, and 77 from non-pulmonary. The equivalent death rates are: *all forms* 1·32, *pulmonary* 1·05, and *non-pulmonary* 0·27 per 1,000 population.

For comparison of death rates with previous years see large table page 56a.

For particulars of deaths, as to site of disease, age, etc., see table, page 65a.

In the vast majority of cases the household taps are served directly from the mains without intervening cisterns. A separate trade supply is piped to some of the great riverside works from a point above the filters.

The bacteriological reports upon the water are given on page 152.

SEWERAGE.—There are 307 miles of sewers discharging directly into the Tyne, which is tidal, at various points along the seven miles of river frontage.

CLEANSING AND SCAVENGING.—With the exception of certain areas, the ashbins are now only emptied once per week instead of twice. With the prevailing high costs it is improbable that the frequency of removal can be increased.

There are 65,035 dry ashtubs and galvanised iron bins, and 1,467 conservancy system closets in the City. Conversion of the latter is proceeding steadily and during 1928, 421 pail-closets, 68 cell privies, and 4 privies with 3 ashpits were removed and water closets substituted. All the schools are served by the water-carriage system.

ADOPTIVE AND LOCAL ACTS IN FORCE.

Adopted Acts.—Infectious Disease (Prevention) Act, 1890. Section 4.

Public Health Acts Amendment Act, 1890.—Part III—Whole of; Part IV.—Whole of.

Public Health Acts Amendment Act, 1907.—Part II.—Sections 20, 22, 23, 26, 27, 28, 29, 30, 31, and 33; Part III.—Sections 34, 35, 36, 37, 38, 43, 45, 48, 49, 50 and 51; Part IV.—Sections 52, 53, 56, 58, 59, 61, 62, 63, 64, 65 and 68; Part X.—Whole of.

Public Health Act, 1925.—Part II., Sections 15, 21, 22, 23, 24, 25, 26, 27, 28, 30, 31, 32, 33 and 35.

Part III.—Whole of.
Part IV.—Whole of.
Part V.—Whole of.

Local Acts.—Newcastle-upon-Tyne Improvement Act, 1837.
,, ,, 1846.
,, ,, 1853.
,, ,, 1865.
,, ,, 1870.
,, ,, 1882.
,, ,, 1892.
Newcastle-upon-Tyne Tramways and Improvement Act .. .. 1899.
Newcastle-upon-Tyne Corporation Act .. 1911.
Newcastle-upon-Tyne Corporation Act .. 1926.

VITAL STATISTICS, YEAR 1928.

COMPARISON WITH OTHER DISTRICTS.

DISTRICT.	Birth Rate.	General Death Rate.	Infantile Mortality Rate.	Death Rate per 1,000 from Enteric Fever, Smallpox, Scarlet Fever, Measles, Whooping Cough, and Diphtheria	Tuberculosis (all forms) Death Rate.
England and Wales	16·7	11·7	65	0·26	†
107 Great Towns (includ. London)	16·9	11·6	70	0·36	†
NEWCASTLE-UPON-TYNE	**19·2**	**13·1**	**82**	**0·44**	**1·32**
Hull	20·5	12·8	79	0·20	1·20
Leeds	16·1	12·9	79	0·20	1·14
Bradford	15·3	13·6	69	0·25	1·00
Sheffield	16·4	11·8	73	0·39	0·93
Manchester	16·8	12·9	91	0·44	1·29
Salford	16·9	13·3	106	0·40	1·40
Liverpool	22·1	13·2	94	0·66	1·38
Nottingham	17·7	12·8	85	0·27	1·10
Leicester	16·2	11·2	71	0·11	1·24
Stoke-on-Trent	19·6	11·7	87	0·43	1·15
Birmingham	17·6	10·9	65	0·29	0·99
Cardiff	18·0	11·7	77	0·30	1·30
Bristol	16·3	11·5	59	0·38	1·01
Portsmouth	17·2	11·3	55	0·41	0·94
London (County)	16·2	12·1	67	0·51	1·03
Gateshead	22·3	13·2	85	0·38	1·53
South Shields	20·3	13·9	92	0·34	2·13
Tynemouth	18·9	12·6	86	0·46	1·37
Sunderland	23·6	13·5	87	0·31	1·46
Middlesbrough	26·1	14·3	88	0·55	1·51
*County of Northumberland	18·4	11·4	67	0·19	0·94
*County of Durham	21·0	11·4	80	0·33	1·04

* Administrative County. † Not available.

Cause of Death.	Age Periods.																		Wards—Net Deaths.																			Transferable Deaths.		Deaths in Institutions in the City of "Residents" or "Non-Residents."
	Gross.									Net.																														
	Under 1 year	1 year and under 2.	2 years and under 5.	5 years and under 15.	15 years and under 25.	25 years and under 45.	45 years and under 65.	65 years and above.	Total (Gross).	Under 1 year.	1 year and under 2.	2 years and under 5.	5 years and under 15.	15 years and under 25.	25 years and under 45.	45 years and under 65.	65 years and above.	Total (Net).	St. Nicholas'.	St. Thomas'.	St. John's.	Stephenson.	Armstrong.	Elswick.	Westgate.	Arthur's Hill.	Benwell.	Fenham.	All Saints'.	St. Andrew's.	Jesmond.	Dene.	Heaton.	Byker.	St. Lawrence.	St. Anthony's.	Walker.	Inward.	Outward.	
I. GENERAL DISEASES.																																								
Enteric Fever	..	..	..	..	5	..	..	..	5	..	..	..	..	4	1	..	..	5	..	..	..	..	1	1	..	..	..	..	..	1	..	..	..	1	..	..	1	1	1	5
Measles	12	19	17	8	..	..	..	..	56	12	19	17	8	..	..	..	..	56	..	..	4	3	..	4	3	1	6	2	3	2	..	..	1	4	11	3	9	..	..	16
Scarlet Fever	..	1	1	..	..	..	..	..	2	..	1	1	..	..	..	..	..	2	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	2
Whooping Cough	21	17	10	2	..	..	..	..	50	21	17	10	2	..	..	..	..	50	1	..	2	5	..	..	2	..	2	3	8	6	..	3	2	6	2	5	3	..	..	9
Diphtheria	..	3	3	4	1	..	..	..	11	..	2	2	4	..	..	..	..	8	..	..	..	1	..	1	..	..	2	..	..	1	..	..	..	2	1	..	..	..	3	10
Influenza	2	2	1	3	2	10	17	13	50	1	2	1	3	2	8	16	12	45	1	3	2	3	1	2	1	2	2	..	1	2	4	5	1	2	3	4	6	..	5	7
Dysentery	..	..	2	7	..	..	1	..	10	..	..	1	6	..	..	..	..	7	..	..	3	1	1	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	3	6
Erysipelas	2	..	..	..	..	2	8	8	20	1	..	..	..	..	2	8	8	19	..	..	..	1	1	1	1	2	4	..	2	..	1	1	..	2	1	..	2	..	1	17
Acute Polio Encephalitis	1	1	1	..	..	..	..	..	3	..	1	1	..	..	..	..	..	2	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	3
Acute Poliomyelitis	..	..	..	..	1	..	..	..	1	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..
Encephalitis Lethargica	..	..	..	..	1	6	5	..	12	..	..	..	..	1	6	3	..	10	..	..	..	..	..	2	1	2	1	..	..	..	..	1	1	..	1	1	..	..	2	8
Cerebro-Spinal Fever	2	1	1	1	1	..	1	..	7	1	..	..	1	1	..	1	..	4	..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	2	..	3	5
Chickenpox	1	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1
Tetanus	1	..	1	2	1	1	..	..	6	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	5	6
[illegible]	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
[illegible]	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1
Tuberculosis of the Respiratory System	1	4	3	13	82	121	70	10	304	..	3	3	11	77	128	65	8	295	2	11	24	21	15	8	15	5	19	9	24	8	6	13	15	19	23	25	33	13	22	153
Tuberculosis of the Central Nervous System	9	11	9	22	8	3	1	..	63	6	7	3	9	5	2	1	..	33	..	3	4	1	..	2	2	..	2	..	..	3	2	2	1	1	4	3	3	..	30	46
Tuberculosis of the Peritoneum and Intestines	1	3	3	5	5	3	1	..	21	1	3	2	5	1	1	..	..	13	1	..	2	1	..	..	..	..	..	..	3	..	..	1	..	2	1	1	1	..	8	15
Tuberculosis of the Vertebral Column	..	..	..	..	1	1	..	..	2	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	1
Tuberculosis of the Joints	..	..	..	..	3	..	1	..	4	..	..	..	..	1	..	1	..	2	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	2	4
Tuberculosis of other Organs	1	..	..	..	1	4	1	..	7	..	..	..	..	..	3	..	..	3	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	2	1	5	6
Disseminated Tuberculosis	2	5	4	5	3	5	5	1	30	1	1	3	5	4	6	4	1	25	..	2	..	2	2	1	2	1	4	..	3	2	..	..	1	..	..	2	3	5	10	24
Total Tuberculosis	14	23	19	45	103	137	79	11	431	8	14	11	30	89	140	71	9	372	3	16	30	25	17	11	19	7	25	9	30	13	9	16	17	23	28	32	42	19	78	249
Pyæmia, Septicæmia	3	..	..	2	2	..	3	..	10	2	..	..	2	..	..	1	..	5	..	..	..	1	..	..	..	..	..	..	..	1	..	1	..	..	1	..	1	..	5	7
Syphilis	4	1	..	..	..	4	13	2	24	2	1	..	..	..	3	8	2	16	..	1	3	..	..	..	1	..	1	..	4	..	..	..	1	1	3	1	..	..	8	18
[illegible]	..	..	1	..	..	..	..	..	1	..	..	1	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
II. GENERAL DISEASES NOT INCLUDED ABOVE.																																								
Cancer of the Buccal Cavity	1	..	..	..	1	2	21	8	33	..	..	..	..	1	2	17	7	27	1	1	2	..	2	1	3	3	1	..	2	1	1	1	1	2	2	3	..	1	7	20
Cancer of the Stomach, Liver, etc.	..	..	..	1	1	7	88	78	175	..	..	..	1	1	5	59	69	135	..	7	8	6	4	6	10	5	14	9	9	11	5	7	3	7	10	4	10	1	41	61
Cancer of the Peritoneum, Intestines and Rectum	..	..	..	1	2	9	59	70	141	..	..	..	..	1	5	33	53	92	1	5	7	8	5	4	3	2	5	6	5	5	4	3	7	11	6	3	2	2	51	84
Cancer of the Female Genital Organs	..	..	..	..	..	13	33	10	56	..	..	..	..	..	8	29	9	46	..	1	4	3	3	4	..	3	4	1	4	2	2	1	4	4	..	1	5	1	11	24
Cancer of the Breast	..	..	..	..	..	5	25	10	40	..	..	..	..	..	5	21	10	36	1	3	1	2	3	3	..	4	2	1	..	3	3	2	3	2	1	2	..	2	6	13
Cancer of the Skin	..	..	..	..	..	..	5	7	12	..	..	..	..	..	..	1	7	8	..	1	..	1	..	..	..	..	..	2	..	1	..	..	1	1	1	..	..	..	4	7
Cancer of other or unspecified Organs	..	..	2	..	2	8	51	44	107	..	..	1	..	1	4	31	39	76	2	5	5	4	4	2	7	2	4	4	6	3	3	5	3	6	3	5	3	2	33	59
Other Tumours (situation undefined)	..	..	1	..	2	3	5	1	12	..	..	..	..	2	..	2	1	5	..	..	..	..	..	..	..	..	2	..	..	1	1	..	..	..	1	..	..	..	7	9
Rheumatic Fever	..	..	1	11	10	4	7	1	34	..	..	1	7	9	1	6	1	25	1	..	1	1	2	..	2	..	4	..	2	1	..	1	2	4	2	..	2	1	10	19
Chronic Rheumatism, Osteo-Arthritis	..	..	..	..	..	..	2	2	4	..	..	..	..	..	..	2	2	4	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	1	1	..	..	..
Rickets	1	9	2	..	..	..	..	..	12	2	6	2	..	..	..	..	..	10	..	..	1	..	2	..	..	..	..	..	1	..	..	..	..	1	3	..	2	1	3	6
Diabetes	..	2	..	1	3	8	22	18	54	..	2	..	..	1	6	13	13	35	..	2	5	5	..	..	3	2	..	1	2	1	1	2	4	2	1	3	1	1	20	26
Exophthalmic Goitre	..	..	..	..	..	2	2	..	4	..	..	..	..	..	1	1	..	2	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	1	3	2
Tetany	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
Diseases of the Thymus	1	..	1	..	..	..	..	..	2	1	..	1	..	..	..	..	..	2	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	2
Addison's Disease	..	..	..	..	1	..	..	1	2	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	1
Leukæmia, Lymphadenoma	1	..	2	4	2	9	2	2	22	..	..	..	3	1	7	1	2	14	..	1	1	1	2	..	..	..	2	1	..	1	2	..	..	1	..	..	2	..	8	15
Anæmia, Chlorosis	..	..	1	..	1	3	5	7	17	..	..	..	..	1	1	3	6	11	..	..	..	1	..	1	1	..	2	..	..	..	..	1	2	2	..	1	..	1	7	8
Other General Diseases	3	..	1	1	1	1	2	..	9	2	..	1	..	1	..	2	..	6	..	..	1	1	..	1	..	..	..	1	1	..	..	..	..	..	..	..	1	..	3	5
III.—DISEASES OF NERVOUS SYSTEM AND SENSE ORGANS.																																								
Encephalitis	1	..	1	1	..	1	..	..	4	1	..	1	..	..	..	1	..	3	..	..	..	1	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	2	4
Meningitis	6	6	4	7	1	2	3	..	29	5	5	3	5	1	2	3	..	24	..	2	1	1	1	1	3	2	..	..	1	..	..	..	..	1	5	1	5	1	6	16
Locomotor Ataxy	..	..	..	..	..	4	6	4	14	..	..	..	..	..	4	6	4	14	..	1	..	1	2	..	1	1	1	1	..	..	..	1	..	..	1	3	1	1	1	6
Other Diseases of the Spinal Cord	..	..	..	..	1	4	5	1	11	..	..	..	..	..	1	3	1	5	..	..	..	..	..	1	..	..	..	..	..	..	1	1	..	..	1	..	1	..	6	7
Cerebral Hæmorrhage, Apoplexy	..	..	..	1	..	9	56	88	154	..	..	..	..	..	7	48	90	145	1	6	8	11	2	4	9	7	6	9	7	12	5	11	8	12	11	4	12	8	17	61
Cerebral Embolism and Thrombosis	..	..	..	..	..	2	9	19	30	..	..	..	..	..	..	8	20	28	..	1	1	1	2	3	1	1	1	1	1	1	3	2	1	2	3	2	1	1	3	11
Hemiplegia	..	..	..	1	..	2	..	4	7	..	..	..	1	..	2	..	4	7	..	..	..	1	..	..	1	..	1	1	1	..	..	..	1	..	..	1	..	..	..	1
General Paralysis of the Insane	..	..	..	..	..	..	1	..	1	..	..	..	..	..	6	6	..	12	..	..	3	..	1	1	..	..	1	1	..	2	..	..	..	..	1	1	1	11	..	1
Other forms of Mental Alienation	..	..	..	..	..	1	3	..	4	..	..	..	..	..	1	4	..	5	..	..	..	..	..	..	..	1	..	..	1	..	..	1	..	..	..	1	1	1	..	4
Epilepsy	..	..	..	..	1	2	2	2	7	..	..	..	..	1	1	2	2	6	..	..	..	..	..	..	1	1	..	..	..	..	..	..	3	1	..	..	..	..	1	2
Infantile Convulsions (under 5 years)	19	2	..	..	..	..	..	..	21	20	2	..	..	..	..	..	..	22	..	..	3	..	1	..	..	..	3	..	2	1	..	..	..	2	3	1	6	1	..	1
Chorea	..	..	1	..	1	1	..	1	4	..	..	..	..	..	..	..	1	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	3
Cerebral Softening	..	..	..	..	..	1	1	12	14	..	..	..	..	..	1	1	12	14	..	..	4	3	1	1	1	..	..	..	1	2	..	..	1	..	..	..	..	..	..	10
Other Diseases of the Nervous System	2	..	3	4	2	11	11	6	39	..	..	1	2	..	14	13	5	35	..	1	1	1	3	2	1	2	2	4	2	3	3	1	2	1	2	3	1	11	15	24
Abscess of Orbit	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
Diseases of the Ears	3	1	5	7	12	11	4	..	43	..	1	2	1	2	5	1	..	12	..	..	1	2	..	1	1	..	1	1	2	..	..	..	..	..	3	..	..	..	31	38
IV.—DISEASES OF CIRCULATORY SYSTEM.																																								
Pericarditis	..	..	1	1	1	1	3	1	8	..	..	1	1	1	1	4	1	9	..	2	1	2	..	..	..	..	1	..	..	1	..	..	..	..	..	..	2	1	..	4
Acute Endocarditis	..	..	1	6	4	16	2	..	29	..	..	1	4	2	13	2	..	22	..	..	2	2	3	..	..	1	2	3	..	1	..	1	1	1	1	2	2	3	10	22
Angina Pectoris	..	..	..	..	..	2	16	16	34	..	..	..	..	..	2	15	16	33	..	2	..	1	2	1	1	2	2	..	2	1	4	6	4	2	..	2	1	1	2	5
Valvular Disease of the Heart	..	..	..	1	9	25	76	85	196	..	..	..	1	8	21	70	84	184	4	12	13	8	8	7	11	9	14	7	12	13	3	12	5	12	8	5	21	6	18	45
Fatty Degeneration of the Heart	..	..	..	..	..	2	9	5	16	..	..	..	..	..	2	10	7	19	..	1	2	2	2	2	2	1	..	1	1	..	1	..	..	..	1	2	1	6	3	2
Other Organic Disease of the Heart	..	..	..	1	..	10	81	142	234	..	..	..	..	..	8	78	150	236	2	9	21	27	15	8	9	8	12	5	17	15	6	8	10	14	24	13	13	24	22	81
Aneurysm	..	..	..	..	1	2	9	..	12	..	..	..	..	..	1	9	..	10	1	1	1	..	1	..	..	..	1	..	..	..	1	1	1	..	1	1	..	..	2	5
Arterial Sclerosis	..	..	..	..	..	2	52	230	284	..	..	..	..	..	1	52	228	281	2	12	17	17	17	25	8	17	18	11	24	22	15	17	13	8	9	9	20	10	13	122
Embolism and Thrombosis	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
Diseases of the Veins (Varices, Hæmorrhoids, Phlebitis, etc.)	1	..	..	..	..	..	1	..	2	..	..	..	..	..	..	1	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Hæmorrhage (without stated cause)	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	1	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2
V.—DISEASES OF RESPIRATORY SYSTEM.																																								
[illegible]	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
Laryngismus Stridulus	1	..	2	..	..	..	..	..	3	1	..	3	..	..	..	..	..	4	..	..	1	..	..	..	..	..	..	..	..	..	1	..	1	..	..	1	..	1	..	1
Bronchitis	26	12	1	1	..	6	25	94	165	26	12	1	1	..	6	26	91	163	1	5	9	20	8	10	11	1	11	5	12	7	3	3	7	9	15	12	14	4	6	38
Broncho-Pneumonia	64	30	16	16	..	11	16	16	169	50	26	11	12	..	8	14	16	137	4	2	17	12	6	6	6	2	9	3	10	7	3	3	4	5	7	13	18	1	33	78
Lobar Pneumonia	7	5	2	5	6	30	39	17	111	6	4	2	6	5	29	39	17	108	1	11	7	9	7	4	3	2	4	7	8	5	5	4	3	5	7	11	5	7	10	60
Pneumonia (type not stated)	7	3	1	4	3	4	13	8	43	7	1	1	3	3	3	13	9	40	..	1	..	3	2	1	1	2	2	6	10	5	1	..	1	1	2	1	1	1	4	11
Pleurisy	..	5	1	1	1	1	4	10	23	..	..	..	..	..	..	3	8	11	..	..	..	1	1	2	..	1	..	1	..	..	1	2	1	..	..	1	..	..	12	15
Congestion and Hæmorrhagic Infarct of Lung	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Asthma	..	..	..	..	1	1	3	8	13	..	..	..	..	1	1	3	8	13	..	1	..	..	1	..	2	2	2	3	1	..	..	1	..	..	..	..	..	..	..	2
Pulmonary Emphysema	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	1	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Other Diseases of the Respiratory System	..	1	..	..	..	..	1	1	3	..	1	..	..	..	..	1	..	2	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	3
Carried forward	209	144	107	150	187	401	910	1064	3172	171	117	78	104	141	345	768	1026	2750	27	116	195	201	139	125	133	98	181	110	195	155	95	127	123	161	186	161	222	135	557	1422

RETURN OF DEATHS FROM "ALL CAUSES" DURING THE 52 WEEKS ENDED 29TH DECEMBER, 1928—*Continued.*

CAUSE OF DEATH.	AGE PERIODS.																		WARDS—NET DEATHS.																			TRANSFERABLE DEATHS.		Deaths in Institutions in the City of "Residents" or "Non-Residents."
	GROSS.									NET.																														
	under 1 year.	1 year and under 2.	2 years and under 5.	5 years and under 15.	15 years and under 25.	25 years and under 45.	45 years and under 65.	65 years and above.	TOTAL (GROSS).	Under 1 year.	1 year and under 2.	2 years and under 5.	5 years and under 15.	15 years and under 25.	25 years and under 45.	45 years and under 65.	65 years and above.	TOTAL (NET).	St. Nicholas'.	St. Thomas'.	St. John's.	Stephenson.	Armstrong.	Elswick.	Westgate.	Arthur's Hill.	Benwell.	Fenham.	All Saints'.	St. Andrew's.	Jesmond.	Dene.	Heaton.	Byker.	St. Lawrence.	St. Anthony's.	Walker.	Inward.	Outward.	
Brought forward	209	144	107	150	187	401	910	1064	3172	171	117	78	104	141	345	768	1026	2750	27	116	195	201	139	125	133	98	181	110	195	155	95	127	123	161	186	161	222	135	557	1422
VI.—DISEASES OF DIGESTIVE SYSTEM.																																								
Diseases of the Buccal Cavity and Annexa	..	..	..	..	1	..	..	1	2	..	..	..	..	1	..	..	1	2	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	2
Diseases of the Pharynx, Tonsillitis	..	1	..	1	..	1	..	..	3	..	..	..	1	..	1	..	..	2	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..	..	1	3
Ulcer of Stomach	..	..	..	..	3	14	14	5	36	..	..	..	..	..	2	7	3	12	..	..	..	..	2	1	..	..	1	2	..	..	..	..	1	2	2	1	..	..	24	31
Ulcer of the Duodenum	..	..	..	..	2	17	16	6	41	..	..	..	..	1	4	5	3	13	..	1	1	1	2	..	2	..	..	..	2	..	..	..	3	..	..	1	..	1	29	35
Other Diseases of the Stomach	4	4	..	1	..	1	7	9	26	2	4	..	1	..	..	4	8	19	..	2	..	4	..	..	2	..	1	..	..	..	..	2	1	2	..	2	3	..	7	6
Diarrhœa and Enteritis (under 2 years)	87	17	..	..	..	..	..	..	104	67	14	..	..	..	..	..	..	81	..	1	19	9	10	2	3	..	6	1	4	2	..	..	2	5	7	4	6	..	23	52
Diarrhœa and Enteritis (2 years and over)	..	..	6	11	1	5	5	11	39	..	..	6	11	1	1	4	12	35	1	3	2	4	5	3	1	1	1	1	1	1	1	1	..	..	..	3	6	1	5	11
Appendicitis	..	..	1	11	11	13	8	5	49	..	..	1	3	3	4	3	1	15	..	..	2	1	..	..	..	1	..	..	..	1	2	3	..	1	3	1	..	..	34	45
Hernia, Intestinal Obstruction	10	2	2	3	2	12	20	31	82	3	1	..	2	..	7	5	14	32	..	..	..	2	1	2	3	1	3	3	2	1	3	1	2	3	1	1	3	3	53	69
Other Diseases of the Intestines	..	1	..	..	..	1	4	2	8	..	..	..	..	..	..	3	2	5	..	1	..	..	..	..	1	..	..	..	..	..	2	..	..	..	..	..	1	..	3	7
Acute Yellow Atrophy of Liver	..	..	1	2	..	..	2	..	5	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	4	5
Hydatid Tumour of Liver	..	..	..	..	..	1	..	..	1	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
Cirrhosis of the Liver (Non-Alcoholic)	..	..	..	..	1	4	9	3	17	..	..	..	..	..	1	4	2	7	..	..	..	1	1	1	1	..	..	..	..	1	..	..	2	..	..	..	..	..	10	11
Cirrhosis of the Liver (Alcoholic)	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Biliary Calculi	..	..	..	..	..	1	15	8	24	..	..	..	..	..	..	5	2	7	..	..	..	1	..	..	1	..	..	1	..	1	1	..	1	..	1	..	..	..	17	19
Other Diseases of the Liver	1	..	..	..	..	..	8	6	15	1	..	..	..	..	..	5	4	10	..	1	1	..	..	1	..	1	1	2	..	1	..	..	..	1	..	..	1	1	6	9
Diseases of the Pancreas	..	..	..	..	..	4	1	1	6	..	..	..	..	..	2	..	1	3	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	3	6
Peritonitis	2	..	..	3	2	2	..	1	10	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	9	9
VII.—NON-VENEREAL DISEASES OF GENITO-URINARY SYSTEM AND ANNEXA.																																								
Acute Nephritis	..	..	2	4	4	4	10	1	25	..	..	1	2	2	1	8	1	15	..	2	3	1	..	2	..	..	..	1	1	..	1	..	..	2	1	..	1	..	10	16
Bright's Disease	..	..	..	2	4	17	45	53	121	..	..	..	..	1	11	39	50	101	1	4	6	7	7	..	4	5	3	7	2	5	6	8	8	7	8	3	10	5	25	48
Other Diseases of the Kidney and Annexa	1	..	1	..	2	4	4	1	13	..	..	1	..	2	2	3	1	9	1	1	1	1	..	..	..	1	..	2	1	1	..	..	..	..	..	..	..	..	4	10
Calculi of the Urinary Passages	..	..	..	..	1	1	3	1	6	..	..	..	..	1	..	1	1	3	..	..	..	..	..	..	..	..	1	..	1	1	..	..	..	..	..	..	..	..	3	6
Diseases of the Bladder	..	1	..	..	..	1	3	4	9	..	1	..	..	..	..	2	3	6	..	1	..	..	1	..	..	..	..	1	..	..	1	1	..	..	..	..	1	..	3	4
Diseases of the Urethra, Urinary Abscess, &c.	..	..	..	1	..	1	4	5	11	..	..	..	1	..	..	3	4	8	1	..	..	..	1	..	..	..	..	..	1	..	..	..	1	1	2	1	..	..	3	8
Diseases of the Prostate	..	..	..	..	..	..	8	35	43	..	..	..	..	..	..	2	12	14	..	..	..	1	3	1	2	1	1	1	..	1	1	..	..	..	..	2	..	..	29	36
Phimosis	1	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..
Uterine Tumour (non-cancerous)	..	..	..	..	..	3	2	..	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	5
Cysts and other Tumours of the Ovary (non-Cancerous)	..	..	..	..	..	1	3	1	5	..	..	..	..	..	..	2	..	2	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	3	3
Salpingitis	..	..	..	..	..	1	1	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2
Other Diseases of the Uterus	..	..	..	..	..	..	2	1	3	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	2	2
Non-Puerperal Uterine Hæmorrhage	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
VIII.—THE PUERPERAL STATE.																																								
Abortion	..	..	..	..	..	3	..	..	3	..	..	..	..	..	2	..	..	2	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	2
Other Accidents of Pregnancy	..	..	..	..	3	2	..	..	5	..	..	..	..	1	1	..	..	2	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	3	5
Puerperal Hæmorrhage	..	..	..	..	1	4	..	..	5	..	..	..	..	1	2	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	2	3
Other Accidents of Childbirth	..	..	..	..	1	9	..	..	10	..	..	..	..	..	4	..	..	4	..	..	1	..	..	..	..	..	..	..	..	1	..	..	1	..	1	..	..	..	7	8
Puerperal Fever	..	..	..	..	4	24	..	..	28	..	..	..	..	..	9	..	..	9	..	..	1	..	..	..	1	1	..	..	2	..	1	..	..	1	..	..	2	1	19	26
Puerperal Albuminuria and Convulsions	..	..	..	..	8	13	..	..	21	..	..	..	..	1	3	..	..	4	..	..	..	1	..	..	1	1	..	..	..	..	1	..	..	..	..	..	..	..	17	18
Puerperal Phlegmasia	..	..	..	..	..	1	..	..	1	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1
Puerperal Insanity	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..
Puerperal Disease of Breast	..	..	..	..	1	..	..	..	1	..	..	..	..	1	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
IX.—DISEASES OF SKIN AND CELLULAR TISSUE.																																								
Senile Gangrene	..	..	..	..	..	..	..	8	8	..	..	..	..	..	..	..	6	6	..	..	..	1	1	..	..	1	..	..	2	..	..	..	..	..	..	1	..	..	2	5
Gangrene, other types	1	..	..	..	..	1	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2
Carbuncle—Boil	1	..	..	1	..	2	1	1	6	..	..	..	1	..	1	..	1	3	..	..	..	..	1	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	[illegible]	4
Phlegmon, Acute Abscess	4	1	..	1	1	4	6	3	20	1	..	..	..	..	1	1	2	5	..	..	..	..	..	1	1	..	..	1	..	..	..	..	..	1	1	..	..	..	15	19
Diseases of the Integumentary System	11	1	1	..	..	1	1	3	18	5	1	..	..	..	1	..	4	11	..	..	..	..	3	..	..	..	..	..	2	1	..	1	..	..	1	1	2	1	8	14
X.—DISEASES OF BONES, etc.																																								
Diseases of the Bones	..	..	2	5	2	..	2	1	12	..	..	1	2	1	..	2	1	7	..	..	..	..	..	..	1	..	1	..	..	..	..	1	1	1	1	1	..	1	6	9
Diseases of the Joints	2	..	1	..	1	..	2	..	6	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	5	6
Other Diseases of the Locomotor System	1	..	..	..	..	..	..	2	3	..	..	..	..	..	..	..	2	2	..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	1	2
XI.—MALFORMATIONS.																																								
Congenital Malformations	37	3	2	2	..	..	..	..	44	20	1	..	..	..	..	..	..	21	..	1	1	1	1	1	..	..	2	2	3	1	..	..	..	1	3	2	2	..	23	22
XII.—DISEASES OF EARLY INFANCY.																																								
Premature Birth	151	..	..	..	..	..	..	..	151	112	..	..	..	..	..	..	..	112	1	..	6	10	15	6	4	2	4	3	7	4	..	5	5	12	8	4	16	1	40	62
Congenital Debility and Sclerema	24	..	..	..	..	..	..	..	24	24	..	..	..	..	..	..	..	24	..	..	1	5	2	..	2	..	2	1	..	..	1	2	2	1	..	2	3	2	2	2
Icterus Neonatorum	2	..	..	..	..	..	..	..	2	1	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
Atelectasis	20	..	..	..	..	..	..	..	20	17	..	..	..	..	..	..	..	17	..	..	1	1	..	2	3	..	1	..	..	1	..	1	..	..	2	3	2	..	3	13
Injuries at Birth	16	..	..	..	..	..	..	..	16	11	..	..	..	..	..	..	..	11	..	1	1	1	2	..	..	..	4	..	..	..	..	..	1	..	..	1	..	..	5	9
Lack of Care	2	..	..	..	..	..	..	..	2	2	..	..	..	..	..	..	..	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..
Other Diseases of Early Infancy	4	..	..	..	..	..	..	..	4	3	..	..	..	..	..	..	..	3	..	..	..	..	1	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	1	3
XIII.—OLD AGE.																																								
Senile Dementia	..	..	..	..	..	..	1	5	6	..	..	..	..	..	..	1	8	9	..	..	1	..	1	..	..	..	..	2	1	..	1	..	..	..	..	..	3	3	..	3
Old Age	..	..	..	..	..	..	..	103	103	..	..	..	..	..	..	..	107	107	..	5	6	6	4	6	4	2	7	5	12	7	3	8	7	10	8	4	3	4	..	13
XIV.—AFFECTIONS PRODUCED BY EXTERNAL CAUSES.																																								
Suicide by Poison	..	..	..	..	1	4	3	..	8	..	..	..	..	..	3	2	..	5	..	..	2	..	..	..	..	..	..	..	1	..	1	..	..	..	..	1	..	..	3	6
,, Asphyxia	..	..	..	..	..	5	6	1	12	..	..	..	..	..	5	6	1	12	..	2	3	..	..	..	1	..	1	2	..	1	..	1	..	..	..	..	1	..	..	4
,, Hanging and Strangulation	..	..	..	..	..	2	2	1	5	..	..	..	..	..	3	2	1	6	..	..	..	..	..	..	1	..	1	..	..	..	..	..	1	1	..	1	1	1	..	..
,, Drowning	..	..	..	..	..	1	..	..	1	..	..	..	..	1	2	1	..	4	..	..	..	..	..	..	..	..	1	..	..	1	1	..	..	..	..	1	..	3	..	..
,, Cutting and Piercing Instruments	..	..	..	..	..	1	5	1	7	..	..	..	..	..	..	4	1	5	..	..	..	..	1	1	..	..	..	1	..	..	..	..	..	..	1	1	..	..	2	5
,, Jumping from High Place	..	..	..	..	..	4	1	..	5	..	..	..	..	..	3	..	..	3	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	2	4
,, Crushing	..	..	..	..	..	1	..	..	1	..	..	..	..	..	1	1	..	2	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	2	1	..
Poisoning	..	..	..	..	..	..	2	..	2	..	..	..	..	..	..	1	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
Burns (conflagration excepted)	1	2	5	4	3	5	3	5	28	1	2	2	2	1	1	1	3	13	..	1	..	..	3	..	1	..	..	1	2	1	..	..	..	1	2	..	1	..	15	24
Accidental Mechanical Suffocation	2	..	..	..	..	..	..	..	2	2	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..
Accidental Drowning	..	..	3	..	3	2	7	..	15	..	..	3	..	2	1	6	..	12	2	..	1	2	..	..	..	..	1	..	2	..	..	..	..	..	..	2	2	1	4	1
Injury by Firearms	..	..	..	..	1	..	..	..	1	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1
Injury by Fall	1	1	2	3	2	10	16	27	62	1	..	1	1	3	5	11	20	42	..	2	..	1	3	5	2	..	2	..	5	4	2	2	..	2	8	1	3	3	23	52
Injury in Mines and Quarries	..	..	..	1	6	4	10	..	21	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	20	21
Injury by other Crushing (vehicles, railways, landslides, &c.)	..	2	8	16	14	21	16	10	87	..	1	2	8	3	14	7	..	35	..	4	1	2	5	..	2	1	4	1	1	2	1	3	2	1	4	..	1	7	59	84
Injury by Animals	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
Wounds of War	..	..	..	..	..	2	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2
Electricity (Lightning excepted)	..	..	..	1	..	..	..	..	1	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Homicide by Cutting or Piercing Instruments	..	..	..	2	1	..	..	..	3	..	..	..	2	1	..	..	..	3	..	2	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..
Homicide by other Means	1	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Fractures (cause not specified)	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
Unstated Forms of Accidental Violence	..	..	..	1	1	3	1	..	6	..	..	..	1	1	1	..	..	3	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	..	3	4
Injury to Throat (Open Verdict)	..	..	..	..	1	..	..	..	1	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
XV.—ILL-DEFINED CAUSES.																																								
Heart Failure (aged 1 year and under 70)	..	..	..	..	..	..	..	2	2	..	..	..	..	..	..	..	3	3	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	1	1	..	..
Other ill-defined causes	..	..	..	..	..	1	..	..	1	..	..	..	..	..	1	1	..	2	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..
TOTAL	596	181	144	226	276	641	1191	1428	4683	447	142	96	143	172	448	923	1313	3684	36	152	258	270	218	163	179	118	237	154	250	198	128	171	165	220	255	211	301	179	1178	2347

Vital Statistics of Whole District during 1928 and previous Years.

YEAR.	Population estimated to Middle of each Year.	BIRTHS.			TOTAL DEATHS REGISTERED IN THE DISTRICT.		TRANSFERABLE DEATHS		NETT DEATHS BELONGING TO THE DISTRICT.			
		Uncorrected Number	Nett.				of Non-residents registered in the District.	of Residents not registered in the District.	Under 1 Year of Age.		At all Ages.	
			Number	Rate.	Number	Rate.			Number	Rate per 1,000 Nett Births	Number	Rate.
1	2	3	4	5	6	7	8	9	10	11	12	13
1911	267,261	7,089	7,082	26·5	4,667	17·5	448	165	973	137	4,384	16·4
1912	269,193	7,219	7,194	26·7	4,221	15·7	529	146	727	101	3,838	14·5
1913	271,295	7,480	7,460	27·5	4,611	17·0	560	141	908	122	4,192	15·5
1914	271,523	7,564	7,538	27·8	5,069	18·7	546	138	1,029	137	4,660	17·2
1915	278,107	7,575	7,545	27·8	5,257	18·9	693	207	1,007	133	4,771	17·2
1916	278,107	7,332	7,248	26·2	4,875	17·5	680	232	899	123	4,427	15.9
1917	278,107	6,548	6,495	23·4	4,646	16·7	718	246	732	113	4,174	15·0
1918	278,107	6,555	6,468	23·3	5,380	19·3	872	308	692	107	4,816	17·3
1919	275,099	6,793	6,674	23·3	5,358	19·5	737	234	806	120	4,855	17·6
1920	286,061	8,433	8,070	28·0	4,609	16·1	779	195	817	101	4,025	14·0
1921	278,400	7,720	7,284	26·2	4,602	16·5	817	142	699	96	3,927	14·1
1922	281,600	7,432	6,987	24·8	4,698	16·7	831	145	646	92	4,012	14·2
1923	283,800	6,961	6,367	22·4	4,298	15·1	789	150	623	98	3,659	12·9
1924	285,900	7,029	6,335	22·2	4,607	16·1	929	172	632	100	3,850	13·5
1925	286,300	7,031	6,215	21·6	4,732	16·5	989	165	550	88	3,908	13·6
1926	284,700	6,728	6,007	21·0	4,460	15·7	979	161	530	88	3,642	12·8
1927	288,500	6,215	5,395	18·7	4,468	15·5	1,058	178	474	88	3,588	12·4
1928	281,500	6,360	5,429	19·2‖	4,683	16·6	1,178	179	447	82	3,684	13·1

‖ Calculated on a population of 282,200.

Corrected Death Rates in different Wards, 1928.

St. N las'.	St. Thomas.	St. John's.	Stephenson.	Armstrong.	Elswick.	Westgate.	Arthur's Hill.	Benwell.	Fenham.	All Saints'.	St. Andrew's.	Jesmond.	Dene.	Heaton.	Byker.	St. Lawrence.	St. Anthony's.	Walker.	City.
	11·1	17·1	14·7	14·2	13·0	11·9	10·5	13·0	9·3	14·4	17·0	11·7	10·8	10·8	12·8	14·5	13·6	14·2	13·1

All deaths occurring in Public Institutions have been allotted to the Wards to which they properly belong.

CAUSES OF DEATH AT DIFFERENT PERIODS OF LIFE FOR 1928.

(Registrar General's Return.)

Causes of Death.	Sex	All Ages	0–	1–	2–	5–	15–	25–	45–	65–	75–
All Causes.	M.	1959	274	69	53	77	79	225	529	381	272
	F.	1776	178	79	40	67	91	219	415	342	345
1—Enteric Fever.	M.	2	..	..	..	..	2	..	..	..	..
	F.	3	..	..	..	..	2	1	..	..	..
2—Smallpox.	M.	1	..	..	..	..	..	..	1	..	..
	F.	..	..	..	..	..	..	..	..	..	..
3—Measles.	M.	26	6	8	7	5	..	..	..	..	..
	F.	30	5	12	10	3	..	..	..	..	..
4—Scarlet Fever.	M.	1	..	1	..	..	..	..	..	..	..
	F.	2	..	1	..	1	..	..	..	..	..
5—Whooping Cough.	M.	23	13	6	4	..	..	..	..	..	..
	F.	29	10	11	6	2	..	..	..	..	..
6—Diphtheria.	M.	4	..	1	1	2	..	..	..	..	..
	F.	4	..	1	1	2	..	..	..	..	..
7—Influenza	M.	22	1	1	..	3	1	4	7	3	2
	F.	25	..	2	1	1	..	4	9	5	3
8—Encephalitis Lethargica.	M.	4	1	..	..	..	..	2	1	..	..
	F.	9	..	..	..	..	1	5	3	..	..
9—Meningococcal Meningitis.	M.	1	..	..	..	..	1	..	..	..	..
	F.	1	..	..	..	..	..	..	1	..	..
10—Tuberculosis of Respiratory system	M.	157	..	4	2	2	31	66	45	7	..
	F.	137	..	..	..	9	45	61	21	1	..
11—Other Tuberculous Diseases.	M.	39	5	6	4	7	6	8	3	..	..
	F.	39	2	5	3	13	8	4	3	1	..
12—Cancer, Malignant Disease.	M.	205	..	..	..	1	2	7	91	75	29
	F.	229	..	..	1	..	3	23	106	58	38
13—Rheumatic Fever.	M.	8	..	..	..	1	3	2	2	..	..
	F.	7	..	..	1	3	2	..	1	..	..
14—Diabetes.	M.	17	..	1	..	..	..	4	6	6	..
	F.	17	..	1	..	..	..	1	6	6	3
15—Cerebral Hæmorrhage, etc.	M.	89	..	..	..	1	..	4	27	35	22
	F.	94	..	..	..	..	..	3	30	39	22
16—Heart Disease.	M.	260	..	..	..	3	7	24	100	75	51
	F.	282	..	..	1	4	8	22	91	96	60
17—Arterio-sclerosis.	M.	160	..	..	..	..	..	1	36	61	62
	F.	114	..	..	..	..	..	..	16	31	67
18—Bronchitis.	M.	95	19	7	1	2	1	5	17	21	22
	F.	75	6	6	1	..	..	2	12	18	30

Causes of Death at different periods of life for 1928—*continued.*

Causes of Death.	Sex	All Ages	0–	1–	2–	5–	15–	25–	45–	65–	75 –
19—Pneumonia (all forms).	M. F.	180 131	38 34	19 16	10 4	13 9	3 6	23 16	50 23	15 10	9 13
20—Other Respiratory Diseases.	M. F.	19 20	1 ..	.. ..	3 ..	1 ..	.. 1	2 2	6 6	3 6	3 5
21—Ulcer of Stomach or Duodenum.	M. F.	16 6	.. ..	.. ..	.. ..	.. ..	1 ..	5 1	7 4	2 1	1 ..
22—Diarrhœa.	M. F.	62 43	41 19	3 8	4 1	9 4	.. 1	1 2	2 1	1 2	1 5
23—Appendicitis and Typhlitis.	M. F.	7 5	.. ..	.. ..	.. 1	2 1	.. 3	3 ..	1 ..	1 ..	.. ..
24—Cirrhosis of Liver.	M. F.	5 2	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	5 1	.. 1	.. ..
25—Acute and Chronic Nephritis.	M. F.	52 47	.. ..	.. ..	.. 1	2 ..	2 ..	6 8	18 18	18 7	6 13
26—Puerperal Sepsis.	M. F.	.. 8	.. ..	.. ..	.. ..	.. ..	.. ..	.. 8	.. ..	.. ..	.. ..
27—Other Accidents and Diseases of Pregnancy and Parturition.	M. F.	.. 14	.. ..	.. ..	.. ..	.. ..	.. 3	.. 11	.. ..	.. ..	.. ..
28—Congenital Debility amd Malformation, Premature Birth.	M. F.	102 72	101 71	.. 1	.. ..	1 ..	.. ..	.. ..	.. ..	.. ..	.. ..
29—Suicide.	M. F.	24 14	.. ..	.. ..	.. ..	.. ..	1 1	10 7	12 4	1 1	.. 1
30—Other Deaths from Violence.	M. F.	76 40	4 1	.. 3	6 2	10 6	9 3	16 5	22 5	7 6	2 9
31—Other Defined Diseases.	M. F.	301 277	44 30	12 12	11 6	12 9	9 4	32 33	70 54	49 53	62 76
32—Causes ill-defined or unknown.	M. F.	1 ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 ..	.. ..

Under 1 Year.

	Legitimate.	*Illegitimate.*
(M.)	252	22
(F.)	164	14

REPORT OF THE MATERNITY AND CHILD WELFARE MEDICAL OFFICER.

II.—THE CHILD.

INFANTILE MORTALITY, MATERNITY AND CHILD WELFARE.

INFANTILE MORTALITY.

SUMMARY OF BIRTHS AND DEATHS, 1928.

	LEGITIMATE.			ILLEGITIMATE.			Grand Total.
	M.	F.	Total.	M.	F.	Total.	
Total Births in the Year ..	3,084	2,965	6,049	157	154	311	6,360
Nett ,, ,, ,, ...	2,649	2,557	5,206	115	108	223	5,429
Nett Deaths under 1 year ..	250	162	412	21	14	35	447
Death Rate per 1,000 births	94	63	79	183	130	157	82

BIRTHS (CORRECTED) IN WARDS IN THE DIFFERENT QUARTERS OF THE YEAR 1928.

WARD.	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	TOTALS.
St. Nicholas'	11	8	9	11	39
St. Thomas'...........	32	37	45	30	144
St. John's	81	96	76	84	337
Stephenson	94	109	97	99	399
Armstrong	92	87	76	67	322
Elswick	57	55	50	47	209
Westgate	77	73	71	68	289
Arthur's Hill	24	24	32	24	104
Benwell	101	100	100	100	401
Fenham	66	77	76	83	302
All Saints'	101	104	78	71	354
St. Andrew's	51	66	62	52	231
Jesmond	19	22	26	20	87
Dene	41	46	57	66	210
Heaton	47	46	46	62	201
Byker	78	102	93	87	360
St. Lawrence	97	141	108	122	468
St. Anthony's	80	68	83	85	316
Walker	164	166	151	175	656
CITY	1,313	1,427	1,336	1,353	5,429

DISTRIBUTION OF DEATHS.

WARDS.	Nett Deaths of Children under 1 year of age in 1928.					Children under 1 year of age—Death rate per 1,000 Births.	Birth Rate per 1,000 Population (corrected).
	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	Whole Year		
St. Nicholas' ..	1	..	1	2	4	103	14·4
St. Thomas' ..	1	1	..	3	5	35	10·5
St. John's	5	8	12	13	38	113	22·3
Stephenson ...	12	9	15	6	42	105	21·6
Armstrong ...	13	10	6	8	37	115	21·0
Elswick	6	2	4	5	17	81	16·6
Westgate	5	3	6	6	20	69	19·3
Arthur's Hill .	2	2	..	1	5	48	9·3
Benwell	10	6	6	8	30	100	22·0
Fenham	5	3	5	2	15	50	18·2
All Saints'	9	10	8	4	31	88	20·4
St. Andrew's .	3	6	5	5	19	82	20·0
Jesmond......	..	1	1	2	4	46	7·9
Dene	3	2	1	7	13	62	13·2
Heaton	2	3	4	4	13	65	13·2
Byker	9	13	7	6	35	97	20·9
St. Lawrence .	9	8	7	12	36	77	26·6
St. Anthony's .	12	5	10	5	32	101	20·4
Walker	8	8	17	18	51	78	30·9
CITY.......	115	110	115	117	447	82	19·2

All births and deaths occurring in Public Institutions have been allotted to the Wards to which they properly belong.

Return of Deaths under One Year of Age during the 52 Weeks ended 29th December, 1928.

Cause of Death.	Age Periods.																				Deaths in Institutions in the City of "Residents" or "Non-Residents"
	Gross.										Nett (after allowing for transfers).										
	Under 1 Week.	1–2 Weeks.	2–3 Weeks.	3–4 Weeks.	Total under 1 Month.	1–3 Months.	3–6 Months.	6–9 Months.	9–12 Months.	Total under 1 Year of Age.	Under 1 Week.	1–2 Weeks	2–3 Weeks	3–4 Weeks.	Total under 1 Month.	1–3 Months.	3–6 Months.	6–9 Months.	9–12 Months.	Total under 1 Year of Age.	
GENERAL DISEASES.																					
Measles	..	..	..	..	..	1	..	3	8	12	..	..	..	..	..	1	..	3	8	12	4
Whooping Cough	..	..	..	..	..	6	4	7	4	21	..	..	..	..	..	6	4	7	4	21	1
Influenza	..	..	..	..	..	..	1	..	1	2	..	..	..	..	..	..	..	..	1	1	1
Erysipelas	..	..	..	..	..	2	..	..	..	2	..	..	..	..	..	1	..	..	..	1	2
Chickenpox	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	1	1	1
Pyæmia, Septicæmia	..	..	..	1	1	..	..	2	..	3	..	..	..	1	1	..	..	1	..	2	1
Acute Polioencephalitis	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	1
Cerebro-Spinal Fever	..	..	..	..	..	2	..	..	..	2	..	..	..	..	..	1	..	..	..	1	2
Acrodynia	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	1
Tetanus	1	..	..	..	1	..	..	..	..	1	1	..	..	..	1	..	..	..	..	1	1
Syphilis	1	..	..	..	1	..	3	..	..	4	..	..	..	..	..	..	2	..	..	2	3
Tuberculosis of the Respiratory System	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	1
Tuberculosis of the Central Nervous System	..	..	..	..	..	..	2	5	2	9	..	..	..	..	..	..	1	3	2	6	5
Tuberculosis of Peritoneum and Intestines	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	1	..	..	..	1	1
Disseminated Tuberculosis	..	..	..	..	..	..	..	1	1	2	..	..	..	..	..	..	..	..	1	1	2
Tuberculosis of Other Organs	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	1
Total Tuberculosis	..	..	..	..	..	1	2	6	3	12	..	..	..	..	..	1	1	3	2	7	8
General Diseases not included above.																					
Rickets, Softening of Bones	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	1	..	1	..	2	..
Cancer of the Buccal Cavity	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1
Tetany	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	1
Diseases of the Thymus	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	1	..	..	1	..
Leucocythæmia, Lymphadenoma	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	1
Other General Diseases	1	..	..	..	1	1	..	..	1	3	1	..	..	..	1	1	..	..	..	2	..
DISEASES OF NERVOUS SYSTEM AND SENSE ORGANS.																					
Encephalitis	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	1	1	..
Meningitis	..	..	..	..	..	..	1	4	1	6	..	..	..	..	..	..	1	3	1	5	3
Infantile Convulsions	7	1	2	1	11	2	4	..	2	19	7	1	2	1	11	2	5	..	2	20	1
Diseases of the Ears	..	..	..	..	..	..	2	1	..	3	..	..	..	..	..	..	..	..	..	..	2
Other Diseases of the Nervous System	..	..	..	..	..	..	1	..	1	2	..	..	..	..	..	..	..	..	..	..	2
DISEASES OF CIRCULATORY SYSTEM.																					
Diseases of the Veins	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1
DISEASES OF RESPIRATORY SYSTEM.																					
Laryngismus Stridulus	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	1	..	..	1	1
Bronchitis	1	..	2	1	4	10	6	4	2	26	1	..	2	1	4	10	6	4	2	26	2
Broncho-pneumonia	1	2	..	3	6	13	15	14	16	64	1	1	..	3	5	11	11	11	12	50	24
Lobar Pneumonia	..	1	..	..	1	2	4	..	..	7	..	1	..	..	1	2	3	..	..	6	2
Pneumonia (type not stated)	..	..	..	..	..	1	4	2	..	7	..	..	..	..	..	1	4	2	..	7	..
Carried forward	12	4	4	6	26	44	50	45	44	209	11	3	4	6	24	38	39	35	35	171	69

Return of Deaths under One Year of Age during the 52 Weeks ended 29th December, 1928.

Cause of Death.	Age Periods.																				
	Gross.										Nett (after allowing for transfers).										
	Under 1 Week.	1–2 Weeks.	2–3 Weeks.	3–4 Weeks.	Total under 1 Month.	1–3 Months.	3–6 Months.	6–9 Months.	9–12 Months.	Total under 1 Year of Age.	Under 1 Week.	1–2 Weeks.	2–3 Weeks.	3–4 Weeks.	Total under 1 Month.	1–3 Months.	3–6 Months.	6–9 Months.	9–12 Months.	Total under 1 Year of Age.	Deaths in Institutions in the City of Residents or Non-Residents
Brought forward	12	4	4	6	26	44	50	45	44	209	11	3	4	6	24	38	39	35	35	171	[illegible]
DISEASES OF DIGESTIVE SYSTEM.																					
Diseases of the Stomach	..	..	..	..	..	1	1	2	..	4	..	..	..	..	..	..	..	2	..	2	1
Diarrhœa and Enteritis	..	2	2	3	7	16	35	17	12	87	..	2	1	2	5	12	22	16	12	67	46
Hernia, Intestinal Obstruction	..	..	..	..	..	..	4	4	2	10	..	..	..	..	..	..	3	..	..	3	35
Disease of the Liver	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	1	..	..	1	[illegible]
Peritonitis	..	..	1	..	1	1	..	..	..	2	..	..	..	..	..	..	..	..	..	..	[illegible]
NON-VENEREAL DISEASES OF GENITO-URINARY SYSTEM AND ANNEXA.																					
Pyelonephritis	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1
Phimosis	..	..	1	..	1	..	..	..	..	1	..	..	1	..	1	..	..	..	..	1	..
DISEASES OF SKIN AND CELLULAR TISSUE.																					
Gangrene	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	[illegible]
Carbuncle—Boil	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	[illegible]
Phlegmon—Acute Abscess	..	..	..	..	..	1	2	..	1	4	..	..	..	..	..	1	..	..	..	1	[illegible]
Diseases of the Integumentary System	1	2	2	2	7	1	..	3	..	11	1	1	1	..	3	1	..	1	..	5	[illegible]
DISEASES OF BONES, &c.																					
Diseases of the Joints	1	..	..	..	1	..	..	1	..	2	..	..	..	..	..	..	..	1	..	1	[illegible]
Abscess of Leg	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	[illegible]
MALFORMATIONS.																					
Congenital Malformations	16	6	1	1	24	7	5	1	..	37	10	4	..	1	15	4	1	..	..	20	31
DISEASES OF EARLY INFANCY.																					
Premature Birth	131	5	6	2	144	7	..	..	..	151	94	3	6	2	105	7	..	..	..	112	[illegible]
Congenital Debility and Sclerema	9	2	3	3	17	6	..	..	1	24	9	2	3	2	16	7	..	1	..	24	[illegible]
Icterus Neonatorum	1	..	1	..	2	..	..	..	..	2	..	..	1	..	1	..	..	..	..	1	[illegible]
Atelectasis	18	2	..	..	20	..	..	..	..	20	16	1	..	..	17	..	..	..	..	17	[illegible]
Injuries at Birth	14	1	1	..	16	..	..	..	..	16	9	1	1	..	11	..	..	..	..	11	[illegible]
Lack of Care	2	..	..	..	2	..	..	..	..	2	2	..	..	..	2	..	..	..	..	2	[illegible]
Other Diseases of Early Infancy	4	..	..	..	4	..	..	..	..	4	3	..	..	..	3	..	..	..	..	3	[illegible]
AFFECTIONS PRODUCED BY EXTERNAL CAUSES.																					
Burns	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	1	1	1
Accidental Mechanical Suffocation	1	..	..	..	1	1	..	..	..	2	1	..	..	..	1	1	..	..	..	2	[illegible]
Injury by Fall	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	1	1	[illegible]
Homicide	1	..	..	..	1	..	..	..	..	1	1	..	..	..	1	..	..	..	..	1	[illegible]
Total	211	24	22	17	274	86	99	75	62	596	157	17	18	13	205	71	66	56	49	447	[illegible]

ANALYSIS OF INFANTILE MORTALITY SINCE COMMENCEMENT OF ORGANISED MATERNITY AND CHILD WELFARE WORK BY THE HEALTH DEPARTMENT.

	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928
Death-rate of Infants *under* 1 *year* per 1,000 births	177	139	166	155	138	153	126	139	122	123	137	101	122	137	133	123	113	107	120	101	96	92	98	100	88	88	88	82
Death-rate of Infants *under* 3 *months* per 1,000 births	83·8	74·8	84·9	82·6	71·6	75·6	68·6	76·6	64·8	66·9	71·5	60·3	67·7	70·7	68·2	66·2	58·7	58·6	64·1	62·1	61·0	57·[illegible]	54·4	59·0	53·4	52·9	55·6	50·8
Death-rate of Infants from *Premature Birth*, per 1,000 births	20·1	20·7	25·1	20·9	19·7	22·0	21·2	24·8	19·8	18·8	21·7	19·3	22·0	19.5	24·0	22·0	22·3	27·4	24·6	20·6	22·2	18·4	21·2	26·7	19·0	20·6	22·6	20·6
Death-rate of Infants *under* 1 *year* per 1,000 births, from *Premature Birth*, plus all *Congenital Causes**	40·8	51·7	62·1	60·6	52·1	61·5	43·0	44·6	42·3	42·6	43·9	48·0	57·4	51·1	56·6	51·0	46·0	45·3	51·5	43·1	39·0	34·8	41·5	45·5	38·6	38·6	38·6	35·4
Death-rate of Infants *under* 1 *year* per 1,000 births, from *Diarrhœa and all other Digestive Diseases* †	45·7	12·8	26·9	21·8	22·4	35·2	12·7	24·8	13·5	16·7	25·1	7·8	16·6	25·3	20·1	14·3	14·8	11·9	14·7	14·9	16·0	9·1	11·5	9·6	11·6	13·1	9·3	13·4
Death-rate of Infants *under* 1 *year* per 1,000 births, from *Infantile Atrophy, Debility and Marasmus*	15·8	19·8	30·8	29·2	24·4	31·4	11·1	10·6	14·6	13·5	22·7	21·4	25·6	23·0	25·0	22·4	17·7	13·0	18·0	16·9	13·0	9·4	11·5	9·5	10·3	7·7	6·5	4·4
Death-rate of Infants *under* 1 *year* per 1,000 births, from *Measles*	..	..	..	..	..	5·35	2·60	0·60	3·64	2·26	4·95	3·61	2·28	4·65	6·90	2·50	2·46	0·77	3·89	0·99	2·88	0·29	4·87	1·10	1·9	1·7	0·6	2·2
Death-rate of Infants *under* 1 *year* per 1,000 births, from *Whooping Cough*	..	..	..	..	..	3·42	7·30	5·73	4·30	5·05	7·35	2·78	5·50	5·20	5·17	4·10	3·70	6·65	0·60	3·1	3·7	1·6	5·3	1·9	4·2	3·8	1·3	3·9
Death-rate of Infants *under* 1 *year* per 1,000 births, from *Respiratory Diseases*.........	..	..	..	..	..	20·8	24·6	27·0	24·4	25·2	26·4	20·4	22·2	30·6	24·9	28·0	27·0	20·9	27·6	26·9	18·7	32·0	23·6	27·9	22·7	18·1	27·1	16·6
Death-rate of Infants *under* 1 *year* per 1,000 births, from *Tuberculosis* (all forms)	..	..	..	..	..	3·53	3·71	4·65	4·55	4·25	2·40	3·20	3·88	3·88	3·40	2·60	1·54	2·63	1·80	1·36	1·51	1·29	2·2	1·6	0·6	2·0	2·4	1·3

Prior to 1911 figures uncorrected for cases belonging to other districts.

*" *All Congenital Causes* " includes Syphilis, Congenital Defects, and Diseases of Early Infancy.

†" *Diarrhœa and all other Digestive Diseases* " includes Diarrhœa, Dysentery, Epidemic or Zymotic Enteritis, Rickets, Diseases of the Stomach, Enteritis, Obstruction of Intestine, Peritonitis and other Diseases of the Digestive System.

For particulars of deaths, as to causes, etc., see Tables on pages 65A and 72A.

DEATHS OF CHILDREN UNDER SCHOOL AGE.

The mortality rate among children, aged 1 to 5 years, in 1928, per 1,000 births in the years 1924 to 1927 (inclusive) was 9·9. The corresponding figure for each of the previous five years was as follows:— 1927, 9·5; 1926, 11·1; 1925, 15·1; 1924, 13·8; 1923, 14·3.

Report of the Maternity and Child Welfare Medical Officer.

To the Medical Officer of Health.

Sir,

General.

In my last report, under the above heading, comment was made on the evil effects of a cold, wet and sunless summer—such as that of 1927 was—on the health of young children, and hopes were expressed that similar conditions would not prevail again in 1928. Fortunately they did not, and the importance of that is revealed by the fact that the deaths from bronchitis of Newcastle children under one year of age dropped from 50 in 1927 to 26 in 1928, and those from broncho-pneumonia dropped from 81 in 1927 to 50 in 1928. Of the other two conditions mentioned in the 1927 report, viz., rickets and anæmia, it is not possible to give comparable figures. Suffice it to say that both were noticeably prominent in children attending the Centres in 1928. As a remedy for these two conditions arrangements were made to supply mothers with an inexpensive emulsion of cod liver oil, containing a scale preparation of iron, and the results of this have so far been very satisfactory. In addition, arrangements were also made during the year to supply ¼ and ½-lb jars of Numol at specially reduced prices. In both cases the distribution was done by chemists in the City in exchange for coupons given at the Centres. It was also deemed necessary to distribute much larger quantities of dried milk during the year to counteract the lowering effects on children of the increased industrial distress in the City.

An epidemic form of diarrhœa, including some cases of true dysentery, was present in the City throughout the year, and caused an increase in the number of deaths from this cause (67, compared with 42 in 1927). Dangerous cases seen at the Centres were notified and visited by a sanitary inspector, and in some instances removed to Walker Gate.

The infantile mortality rate in Newcastle touched a new low record during the year, viz., 82 per 1000 births, and for the first time for several years the number of births occurring in the City increased in 1928.

The mortality rate is even better than the above figures imply, because among the 5,206 legitimately born children it was only 79 per 1,000 births, the excessively high death rate among the comparatively few (223) illegitimate children (157 per 1,000) bringing the total figure up to 82. The illegitimate birth rate in Newcastle is not excessive, and it compares favourably with that of similar towns, but here, as everywhere, these children suffer from all the disadvantages and privations attached to the " unwanted," and large numbers of them therefore die. Every effort is made to get them to the Centres, and when there they receive the same attention as is given to their more fortunate brothers and sisters.

The steady drop in the number of deaths occurring among children below school age, which has been going on for the last five years, is maintained.

Nursing Homes Registration Act, 1927.

Visits of inspection were paid to the nursing homes in the City in compliance with the requirements of the above Act. On the whole, the homes were very satisfactory, the chief deficiency found being inadequate arrangements for dealing with any possible outbreak of fire. The help and advice of the Fire Brigade Superintendent was asked for and received, and only after the appliances recommended by him had been installed was the certificate of registration granted.

Staff Changes.

The following members of the Health Visiting Staff resigned during the year: Misses F. M. Medd and M. F. Hartwell.

These were replaced by Misses J. Pottinger and N. Lewis.

Ante-Natal Centres.

Increased attendances at the above Centres are again reported, the number of individuals attending showing an excess of nearly a third over the corresponding figures for 1927. To the following table must be added those expectant mothers who normally attend the City Centre, and who are referred for ante-natal services to the Maternity Hospital, in which premises the Centre is held.

Attendances at the Ante-Natal Centres.

YEAR.	SESSIONS.	INDIVIDUALS.	ATTENDANCES.
1923........	95	281	618
1924........	170	414	1072
1925........	319	679	2135
1926........	376	1015	2628
1927........	378	1047	2937
1928........	376	1404	4284

The following interim Report on Ante-Natal Cases was presented to the Committee during the year :—

REPORT ON ANTE-NATAL CASES.

The following were the conditions found, and the results of the confinements of 913 ante-natal mothers who attended the Municipal Ante-Natal Centres during 1928, and whose children were born during that year.

These ante-natal mothers were sent to the ante-natal centres by—

Doctors	119	cases, or	13%
Midwives	220	,,	24%
A friend, or came themselves	451	,,	50%
Health Visitors	123	,,	13%
	913		

791, or 87 per cent., of the subsequent *confinements* were *normal,* and of these normal confinements 771, or 97 per cent., resulted in living births. 108, or 11 per cent., of these confinements were instrumental, and 91, or 90 per cent., resulted in living births; in 7, or 1 per cent. of the cases cæsarian section was performed, and in all these cases the children were born alive.

7 of the pregnancies ended in a miscarriage.

5 per cent. of all the children were still-born.

25, or 2·7 per cent. of the children were premature.

Labour was induced in 6 cases.

Abnormalities were found in 87, or 9 per cent. of the cases, and the ultimate results were as follows :—

Breech presentation 28 cases.

18 normal confinements, resulting in 17 living children and 1 still-born.

8 instrumental confinements, with 6 living-and 2 still-births.

2 Cæsarian operations, resulting in 2 living children.

Labour was induced in 3 cases.

Occipito posterior positions in 13 cases.

10 normal confinements, resulting in 7 living and 3 still-born children.

3 instrumental confinements, resulting in 3 living children.

Twin pregnancies in 19 cases.

15 normal confinements, with 25 living and 5 still-born children.

4 instrumental confinements, with 3 living and 5 still-born children.

Deformed pelves in 12 cases.

7 normal confinements (4 of them induced), with 7 living born children.

5 Cæsarian section operations, with 4 living children and 1 still-born child.

Albumen present in urine in 34 cases.

31 normal confinements, with 30 living children and 1 still-born.

2 instrumental confinements, with 2 living children.

1 miscarriage.

2 of these mothers developed fits after confinement, but both recovered.

Deaths.

1 from eclampsia, although no albumen found in urine in 12 hours before delivery.
3 from septicæmia.
1 from heart disease ; baby born alive ; mother died about a week afterwards.
1 from uræmia ; baby born alive.
1 from cerebral hæmorrhage.

Toddlers and Open-Air Nursery Schools.

An increased number of pre-school children attended the Centres during the year, and the time has come when additional facilities for dealing with these children should be provided. At present they are only seen on the first Centre day in every month, and I suggest that at least one other day in the month should also be devoted entirely to them, at any rate until such time as we can provide them with open-air nursery schools, which appear to me to be the surest way we have at present of promoting the welfare of our toddlers. At these schools arrangements are made whereby young children are able to spend the whole day in the open air ; they arrive early in the morning and do not return to their homes till bedtime. Meals are provided at the school during the day, and certain regular times are set apart for rest and sleep—both taken in what is true open-air in summer and practically so in winter.

Where these schools already exist, experience has proved that the health of the children attending them has improved in a surprising manner, and many of the crippling ailments among them have almost entirely disappeared. It is more than likely that in a district like Newcastle, where respiratory and other catarrhs are so prevalent among children, these open-air schools will prove a boon. At the time of writing a suitable building and site for one of these schools has been found in Scotswood, and will forthwith be recommended as a practical beginning of this scheme.

TODDLERS ATTENDING THE NEWCASTLE CENTRES.

YEAR.	NUMBER OF CHILDREN.
1923	1,627
1924	1,726
1925	1,992
1926	2,268
1927	2,542
1928	2,591

Nursery Schools.

I regret to have to report that Diana Street School lost the services of Miss Grace Nicholson, who was appointed one of the Lady Almoners at the Royal Victoria Infirmary during the year. Miss Nicholson was exceptionally well able to establish and carry on a nursery school, and Diana Street School owes its marked success very largely to her abilities, and to her devotion to its welfare. Miss Sharp-Naters is now in charge of the Diana Street School, and under her able management, it continues to flourish. The success of the St. Peter's School is also well maintained. These schools, or play centres, as perhaps they might be more appropriately called, are carried on entirely by voluntary workers, and it is a pleasure to pay tribute once again to the ladies who so kindly give their skill, services, and money to this excellent work.

Births.

YEAR.	BIRTHS.
1923	6,367
1924	6,335
1925	6,215
1926	6,007
1927	5,395
1928	5,429

Deaths.

447 of the City's children died before they had reached the completion of their first year of life, as compared with 474 in the previous year, and of this number, 205—or 45·8%—died before they were one month old. Of the children who died during the first month of life, 157 died during the first week—that is, before any public health influence could be brought to bear in their favour. The cause of death in many of these infants is obscure, but the principal stated cause is "prematurity," which accounted for 105 out of a total of 205. "Debility" and "marasmus" are also prominent stated causes of early death. The high mortality among multiple births was noted in a previous report, and of one set of triplets born during 1928, all died. The deaths among twin children numbered 33, compared with 41 in 1927.

The number of deaths attributed to bronchitis and pneumonia was 89, as compared with 145 for 1927. The following table shows graphically what is set out above :—

	1924.	1925.	1926	1927.	1928.
Deaths of children during first week of life	202	167	169	154	157
Deaths of children during first month ..	285	248	226	222	205
Deaths from Prematurity	169	118	124	122	112
Deaths of Twins and Triplets	73	50	55	41	36
Deaths from Pneumonia and Bronchitis	176	141	106	145	89

Sex Infant Mortality.—Of the 5,429 children who were born in the City during the year, 2,764 were boys and 2,665 were girls : that is, there were 99 more boys than girls. 271 boys (or 98 per thousand of those born) died during their first year, compared with 176 girls (or 66 per thousand births).

Welfare Centres.

The following table shows the geographical position of the Centres in the City, together with details of Centre days, etc. :—

Centre.	Address.	Women and Children.	Medical Officer.	Health Visitor.	Ante-Natal Sessions.
Benwell	Y.W.C.A. Club, Buddle Road	Monday......	Dr. Glen Davison ...	Miss Willson....	Friday, 2 p.m. Mr. Harvey Evers.
Byker	Corner of Dalton Street and Shipley Street	Monday...... Friday, 10 a.m.	Dr. Spinks	Miss Johnson ..	Friday, 2 p.m. Dr. Mabel Campbell.
City	Princess Mary Maternity Hospital, Jubilee Road	Wednesday...	Dr. Spinks	Miss Pritchard .	Thursday, 2 p.m. Mr. Harvey Evers.
Diana Street, Westgate ...	25, Diana Street	Tuesday ..... Friday, 2 p.m.	Dr. Spinks	Miss Smithson ..	Wednesday, 10 a.m. Mr. Harvey Evers.
Portland Street, Elswick ..	Salvation Army Rooms, Portland Street	Thursday	Dr. Glen Davison ...	Miss Hatfield ..	Tuesday, 2 p.m. Mr. Harvey Evers.
Scotswood	Denton Road	Tuesday	Dr. Spence	Miss Carr	Benwell (see above).
Shieldfield..............	St. Jude's Parish Hall, Dinsdale Road	Thursday	Dr. Spinks	Miss Mason.....	Byker (see above).
Spital Tongues..........	Dunn's Cottages	Tuesday (Afternoon only)	Dr. Mabel Campbell	Miss Wigham ..	Diana St. (see above) or Wharncliffe Street (see below).
St. Peter's	Corner of Glasshouse Street ...	Friday	Dr. Glen Davison ...	Miss Hisco	Tuesday, 10 a.m. Mr. Harvey Evers.
Walker	Presbyterian Church Hall, Church Street	Thursday	Dr. Nattrass........	Miss Morton	Monday, 10 a.m. and 2 p.m. Mr. Harvey Evers
Wharncliffe Street, Scotswood Road	18, Wharncliffe Street	Wednesday...	Dr. Mabel Campbell	Miss Shell	Tuesday, 10 a.m Dr. Mabel Campbell.

Additional Centres will be required in each of the new districts springing up so quickly in the City, such as Cowgate, Walker Gate, High Heaton, Two Ball Lonnen, etc., and recommendations will be made in due course.

In 1928 the attendances numbered 53,960, an increase of 7,288. 3,262 children made their first attendance at the Centres, as compared with 3,131 in 1927.

It will be noted from the following table that the number of individuals attending the Centres continues to increase yearly.

Attendances at Maternity and Child Welfare Centres.

CHILDREN.

YEAR.	No. of Attendances.	No. of Individuals.	Average Attendance per Individual.	Average Attendance at each Session.
1920 ...	22,596	3,751	6·0	44·2
1921 ...	32,538	4,734	6·8	40·7
1922 ...	36,020	4,835	7·4	44·9
1923 ...	42,515	5,153	8·2	46·5
1924 ...	45,766	5,587	8·2	45·5
1925 ...	45,476	5,744	7·9	43·6
1926 ...	50,697	6,467	7·8	46·2
1927 ...	46,672	6,522	7·1	42·4
1928 ...	53,960	6,532	8·3	49·3

Sewing and Knitting Classes.

The attendances at these are well maintained, and the facilities offered and instruction given are much appreciated.

Lectures.

Various lectures or papers relating to Maternity and Child Welfare were given during the year, and the Centres were used for this purpose. Among the most important were those given to a class of medical students, which related to the work generally and particularly to its legal aspect, and another given to girl students from the Kenton Lodge Training College. Subsequent to the latter lecture, the girls were brought to the Centres in relays to see the practical work done. As all these students in both classes will at some future period come into close contact with young children, it is hoped that this experience will be of help to them.

Dried Milk.

The following table shews the quantity of dried milk distributed each month during the year :—

MONTH.	FREE. 1928.	AT COST PRICE. 1928.
	lbs.	lbs.
January	4,737	2,841
February	4,998	2,773
March	6,444	3,286
April	5,062	2,541
May	5,278	2,774
June	6,053	2,709
July	4,904	2,409
August	5,190	2,208
September	6,156	3,460
October	5,731	2,688
November	5,687	2,627
December	7,176	2,979
	67,416	33,293

Number of children attending Centres :—6,532.

Number of children who were given free milk :—2,166, or 33·2 per cent. of those who attended the Centres.

Number of children who received orders for milk at cost price only :—1,025, or 16 per cent.

Of the total amount given free :—

64,729 lbs. were given to children.

2,687 lbs. were given to 281 expectant mothers.

MATERNITY AND CHILD WELFARE CENTRES, 1928

Month.	Ante-Natal Sessions.	Ante-Natal.		Post-Natal.		New Children.			Individuals.			Attendances.			Medical Sessions	
		Attendances.	Individuals.	Attendances.	Individuals.	Under 12 months	Over 12 months	Total.	Under 12 months	Over 12 months	Total.	Under 12 months	Over 12 months	Total.	Number.	Average Attend'ce.
January	30	313	228	13	11	247	27	274	1166	986	2152	2254	1609	3863	88	43·8
February	32	313	223	17	17	227	33	260	1224	1081	2305	2523	1726	4249	92	46·1
March	40	430	271	22	22	275	27	302	1333	1112	2445	2986	1977	4963	115	43·1
April	25	300	241	9	9	272	29	301	1279	1109	2388	2315	1649	3964	79	50·1
May	32	367	265	10	10	232	51	283	1313	1210	2523	2679	1912	4591	92	49·9
June	27	331	225	25	22	222	21	243	1289	1219	2508	2360	1943	4303	83	51·8
July	24	292	220	22	20	253	28	281	1277	1102	2379	2245	1550	3795	69	55·0
August	30	322	232	17	17	216	35	251	1329	1128	2457	2509	1728	4237	88	48·1
September	40	507	329	20	15	312	65	377	1516	1433	2949	3609	2436	6045	115	52·5
October	31	396	280	19	18	233	40	273	1418	1356	2774	2674	1944	4618	88	52·4
November	32	349	279	13	12	185	31	216	1332	1384	2716	2589	2071	4660	92	50·6
December	33	364	233	11	11	167	34	201	1253	1355	2608	2452	2220	4672	94	49·7
Total	376	4284	*1404	198	*54	2841	421	3262	*3941	*2591	*6532	31195	22765	53960	1095	49·3

* Number of actual individuals during year. The same persons attend during different months, so that these figures do not represent total of column.

MATERNITY AND CHILD WELFARE CENTRES, 1928.

CENTRE.	Ante-Natal Sessions.	Ante-Natal.		Post-Natal.		New Children.			Individuals.			Attendances.			Medical Sessions.		Illegitimate.	Individuals.	
		Attendances.	Individuals.	Attendances.	Individuals.	Under 12 months	Over 12 months	Total.	Under 12 months	Over 12 months	Total.	Under 12 months	Over 12 months	Total.	Number.	Average Attend'ce.		Boys.	Girls.
Benwell	48	629	232	44	3	316	39	355	442	311	753	3167	2389	5556	91	61·1	8	388	365
Byker...............	48	735	221	50	28	423	67	490	563	342	905	3945	2619	6564	139	47·2	21	462	443
City Road...........	..	..	..	..	..	204	25	229	272	224	496	2146	2176	4322	96	45·0	11	250	246
Diana Street	48	678	249	26	7	364	56	420	509	400	909	4161	3851	8012	142	56·4	20	432	477
Portland Street	47	468	166	19	..	293	52	345	422	298	720	3548	2418	5966	98	60·9	23	386	334
Scotswood	..	..	..	..	..	84	9	93	127	85	212	1482	1203	2685	94	28·6	11	117	95
Shieldfield	..	..	..	..	..	235	34	269	329	250	579	2333	2151	4484	98	45·8	13	266	313
Spital Tongues	..	..	..	..	..	75	8	83	99	60	159	883	456	1339	47	28·5	..	83	76
St. Peter's...........	47	303	116	9	6	277	42	319	425	237	662	3130	2110	5240	96	54·6	22	351	311
Walker	91	707	230	16	1	329	45	374	435	189	624	3591	1814	5405	98	55·2	10	302	322
Wharncliffe St.	47	764	190	34	9	241	44	285	318	195	513	2809	1578	4387	96	45·7	17	244	269
Total ..	376	4284	1404	198	54	2841	421	3262	3941	2591	6532	31195	22765	53960	1095	49·3	156	3281	3251

SUMMARY OF CENTRE REPORT, 1928.

Total Sessions, all Medical	1,095	Average attendance at each.... 49·27
Total Individuals	6,532	Average visits per individual.... 8·26
Total Ante-Natal Sessions	376	Average attendance at each .... 11·9
Total Ante-Natal and Post-Natal Individuals	1,458	Average visits per individual.... 3·0
Benwell Ante-Natal Sessions	48	Average attendance, 14·0; average visits per individual .... 2·8
Byker Ante-Natal Sessions	48	Average attendance, 16·3; average visits per individual .... 3·1
Diana St. Ante-Natal Sessions ..	48	Average attendance, 14·6; average visits per individual.......... 2·7
Portland St. Ante-Natal Sessions	47	Average attendance, 10·3; average visits per individual.......... 2·9
St. Peter's Ante-Natal Sessions ...	47	Average attendance, 6·6; average visits per individual.......... 2·5
Walker Ante-Natal Sessions	91	Average attendance, 7·9; average visits per individual .... 3·1
Wharncliffe St. Ante-Natal Sessions	47	Average attendance, 16·9; average visits per individual .... 4·0
Illegitimate Children Attending ..	156	

Total Deaths (children attending centres)	142 (all ages).
Death Rate ,, ,, ,,	21·7 per 1,000 (all ages).
Death Rate among all the Infants in the City under 1 year................	82 per 1,000 births.

SEWING AND KNITTING CLASSES, 1928.

CENTRE.	SUBJECT.	TEACHER.	DAY.	Attendance.	Sessions.	Average.
Benwell	Sewing and Knitting	Miss Crawford	Tuesday	393	47	8·4
Byker	Sewing and Knitting	Miss Whipp	Friday	542	48	11·3
City	Knitting	Miss Whipp	Wednesday	1205	96	12·6
City	Sewing	Miss Robson	Thursday			
Diana Street	Sewing	Miss Crawford	Wednesday	968	96	10·1
Diana Street	Knitting	Miss Whipp	Thursday			
Portland Street	Sewing and Knitting	Miss Robson	Tuesday	669	46	14·5
Scotswood	Sewing and Knitting	Miss Whipp	Tuesday	529	47	11·3
Shieldfield	Sewing	*Mrs. A. Holmes	Tuesday	308	47	6·6
Spital Tongues	Sewing	Miss Whipp	Monday	656	46	14·3
St. Peter's	Sewing	Miss Robson	Wednesday	448	49	9·1
Walker	Knitting	Miss Crawford	Thursday	540	48	11·5
Wharncliffe Street	Sewing and Knitting	Miss Crawford	Friday	390	47	8·3

* Voluntary Worker.

Voluntary Workers.

One or more voluntary workers are now attached to each Centre, and all have given most freely of their services throughout the year. Mrs. Roy Williamson—the President of the Voluntary Association—has kindly provided the following report:—

REPORT OF THE VOLUNTARY WORKERS AT THE CHILD WELFARE CENTRES FOR 1928.

Voluntary workers connected with the Welfare Centres have continued during 1928 to carry on their usual activities. They have attended the sewing classes which are held once a week at each centre under the tutelage of a salaried teacher, helped with secretarial work on the doctors' days, given financial assistance from the Committee's funds where mothers were unable to pay for artificial teeth, etc., and sent mothers with their babies to the Rose Joicey Home for convalescence.

Play Centres for toddlers, run entirely by voluntary workers, have been held weekly as usual, at Diana Street and St. Peter's. Diana Street Play Centre has been unfortunate in losing the services of Miss Nicholson, who started it, and to whose personal efforts its great popularity amongst the mothers and children of the neighbourhood is largely due.

The numbers of attendances at the sewing classes are to be found in the main report. All mothers attending these classes are allowed to pay for their materials by instalments whilst making garments for their children. At a few of the Centres the voluntary workers always keep a stock of "jumble" clothes which mothers can buy cheaply and learn to make into serviceable garments. This is an excellent practice, and one which should be the rule.

Christmas parties were given at many of the Centres, and before Christmas several mothers attending the St. Peter's Centre met together at that centre to mix their plum puddings. The ingredients had been bought in bulk, and the pudding worked out at only 5½d. per lb.

This short account of the activities of voluntary workers does not adequately describe them, as anyone who has worked at the Centres will know. The work affords opportunities for the friendly exchange of views and ideas between helpers and working mothers, which are mutually appreciated and mutually beneficial.

In October Mrs. Brackenbury resigned her chairmanship of the Voluntary Committee, as she found that the distance of her new home from Newcastle made the efficient carrying on of the work impossible.

It is difficult to express adequately all that the Infant Welfare movement in Newcastle owes to Mrs. Brackenbury. She was one of the pioneers who realised early in this century the need for Schools for Mothers, and who brought them into being. The early reports of the Newcastle "Welcomes" make inspiring reading. They were supported at first entirely by voluntary subscriptions and run entirely by voluntary workers, with the assistance of qualified doctors for the medical side of the work. Mrs. Brackenbury was president of The Newcastle-on-Tyne Mothers and Babies Welcome Society from 1912 until 1920, when the nine Welcomes were taken over by the City Corporation. From 1920 until her resignation she was Chairman of the Voluntary Committee. Her energy, efficiency and enthusiasm, as well as her unfailing encouragement and helpful appreciation, will be greatly missed by all who worked with her.

ELSA M. WILLIAMSON,
Chairman of the Voluntary Committee.

Notification of Births Acts.

Of the 6,360 births (gross) which were registered in the City in 1928, 5,214, or 82·0 per cent. were notified as follows :—

Notified by.	Gross Living Births.		Still-Births.
Medical Practitioners	665	..	18
Midwives	1809	..	41
Maternity Hospital	2366	..	205
Wingrove Hospital	113	..	10
Gables Maternity Home	248	..	13
Parents	13	..	..
	5,214		287

Of the 5,214 living births notified, 1,096 were outside cases born in Newcastle, giving a net figure of 4,118.

Of the 287 still-births, 125 were outside cases. Net 162.

Still-Births.

Of the total net notifications of births received, still-births were in the following proportion :—

Year.	Percentage.	Year.	Percentage.
1922	3·0	1926	3·2
1923	3·0	1927	3·8
1924	2·7	1928	4·0
1925	2·9		

Total still births registered—331. Total still births notified—287, or 86·7 per cent.

Details of 204, or 80 per cent., of the above still-births which were visited by members of the staff :—

Duration of Pregnancy.—At or under 7 months, 42, or 20·9% ; at or under 8 months, 46, or 21·9% ; at full time, 116, or 57·2%.

Suggested causes of the still-births :—

		Cases.
(*a*)	Ill-health of the mother	27
(*b*)	Fœtal deformities and malpresentations and uterine inertia....	54
(*c*)	Premature delivery, ante-partum hæmorrhage, etc.	42
(*d*)	Other causes, including albuminuria	66

The following table shows the position in the family of the still-born child :—

	Cases.		Cases.
1st child	78	4th child	20
2nd child	30	5th child	14
3rd child	21	6th child	41

In 164 cases it was the first still-birth, in 28 the second, in 6 the third, and in 6 cases there were more than three previously still-born. 40 per cent. of the still births occurred in hospital. Seven of the mothers subsequently died.

Syphilis was returned as a cause of death in 2 children below the age of 1 year.

WORK OF HEALTH VISITORS.

18 Health Visitors, including the Chief Health Visitor, were engaged solely in Maternity and Child Welfare Work during 1928.

4,733 births were visited, and 20,576 re-visits were paid, an average of 4·3 visits per child. These give a total of 25,309 visits to children under 1 year.

SUMMARY OF VISITS.

	Primary.	Subsequent.	Total.
Births	4,733	20,576	25,309
Measles	3,804	4,377	8,181
Pneumonia	1,368	1,870	3,238
Diarrhœa	22	10	32
Children over One Year	....	....	25,584
Hospital Cases	....	....	228
Expectant Mothers	....	....	1,681
*Special Visits	....	....	361
Unsuccessful Visits (Outs and Removals)	....	....	3,455
	....	....	68,069

* Includes 9 to crippled children and 5 to mentally deficient children.

The addresses of 80 children who left the City were sent to the Medical Officers of Health for the districts to which they had gone to reside.

Infants on Visiting List.

Of 4,529 children born in the City in 1927, 3,886 completed their first year in 1928, and of the remainder:

409 died,
126 left the City,
74 disappeared and could not be traced,
34 were visited only once.

The following figures are therefore based on the 3,886 who completed the first year, *plus* the 409 who died, making in all a total of 4,295, and of that total 2,243 or 52·2 per cent., attended the Welfare Centres. Of these 119 died, a rate of 53 per 1,000, compared with 82 per 1,000 for the whole City.

Influence of Housing Conditions.

During the 21 years, 1908—1928, 79,606 births have been under the supervision of the Health Visitors, and of these 8,909 died. The following table shows the numbers of births and deaths in the various classes of house :—

YEAR.	HOUSES OF							
	1 Room.		2 Rooms.		3 Rooms.		4 Rooms or more.	
	Births	Deaths	Births	Deaths	Births	Deaths	Births	Deaths
1908......	247	32	515	57	312	32	13	2
1909......	339	53	694	86	168	32	29	3
1910......	536	62	723	68	51	4	7	2
1911......	462	68	794	79	77	6	20	1
1912......	465	48	746	60	110	6	25	1
1913......	241	40	348	28	91	3	17	3
1914......	245	36	375	31	90	11	25	3
1915......	631	104	2,140	306	1,416	144	692	74
1916......	611	121	2,333	343	1,584	180	756	85
1917......	730	104	2,199	284	1,349	150	776	84
1918......	607	90	2,018	270	1,285	144	766	83
1919......	664	111	2,056	306	1,358	188	810	102
1920......	843	167	2,155	291	1,529	171	1,052	121
1921......	1,263	140	2,523	234	1,651	134	1,036	88
1922......	1,223	159	2,267	241	1,342	97	655	61
1923......	1,357	149	2,187	243	1,155	86	637	54
1924......	1,440	188	1,946	200	1,096	100	666	62
1925......	1,395	151	1,803	192	1,001	89	654	50
1926......	1,472	153	1,774	162	1,108	94	720	63
1927......	1,334	132	1,772	168	988	62	721	68
1928......	1,114	109	1,553	159	936	72	692	69
21 years ..	17,219	2,217	32,921	3,808	18,697	1,805	13,769	1,079
Death rate per 1,000 births		128·7		115·6		96·5		100·2

Walking and Talking.—Of the 3,886 children who completed their first year, 80 per cent. were walking at the end of the year, and 88 per cent. were talking at the end of the year.

Illnesses.—Among the children visited 169, or 4·3 per cent., developed measles; 139, or 3·5 per cent., developed whooping cough; 119, or 3 per cent., developed diarrhœa; 584, or 15 per cent., developed bronchitis or pneumonia.

The mortality per 1,000 births in 1928 was as follows :—

1 roomed dwellings	98
2 roomed dwellings	102
3 roomed dwellings	77
Dwellings over 3 rooms	100

Details as to the stated **Feeding** of the 4,295 children under supervision during the year are given in the following table :—

	Feeding.					
	Breast.		Mixed.		Artificial.	
	No.	Percentage.	No.	Percentage.	No.	Percentage.
At First Visit	3,916	91·4	164	3·7	215	4·9
Deaths in First Year of above Children..................	343	8·7	24	14·0	42	19·5
At time of Death	275	7·0	20	12.0	114	53·0
Surviving Children (3,886) at 9 months	1,603	41·0	750	19·0	1,533	40·0

Illegitimacy.—223 illegitimate children were born ; of these 35 died, a death-rate of 157 per 1,000, as compared with 79 among legitimate children.

MIDWIVES ACTS, 1902 and 1918.

During the year 46 midwives notified the Local Supervising Authority of their intention to practise in the City, and of these 42 held the examination certificate of the Central Midwives Board, and four were registered as having been in *bona fide* practice before the passing of the 1902 Act.

Inspections—295 visits were paid by the Superintendent of Midwives to the homes of certified midwives for the purpose of inspecting midwifery bags and appliances, and to ascertain that the necessary records of their work were being satisfactorily kept, also to investigate cases of ophthalmia neonatorum, septicæmia, or other abnormalities occurring in their practices. In addition, 146 visits were paid to midwives' cases on account of some abnormal condition. The results of these inspections were generally satisfactory.

The clothing and appliances of eleven midwives were disinfected ; ten after being in contact with puerperal septicæmia or pyrexia, and one after scarlet fever.

Six handy-women were interviewed as to conduct, and, on investigation, it was found that they had acted in emergencies.

Births attended by Midwives.—1,809 living births and 41 still-births were attended by midwives during the year ; these figures show a decrease of 56 in the former and an increase of 1 in the latter. Midwives attended 33·7 per cent. of the net births in the City, a slightly lower percentage than in 1927.

The closest co-operation and loyalty exists between the midwives practising in the City and the staff of the Health Department, and midwives are encouraged to send their cases to the ante-natal clinics. Much benefit was derived by those mothers who were sent, as well as by the midwives concerned. The midwives carry out, according to the C.M.B. rules, ante-natal care of their patients, and keep the records of their visits very accurately.

The post graduate course of six lectures with practical demonstrations was given this year by different doctors on subjects of special interest to the midwives and Health Visitors. These lectures were given at Diana Street Centre, and were highly appreciated and of the greatest value to those who attended.

Notices for medical help sent to Local Authority by the Midwives :—

FOR THE MOTHER.

During Pregnancy—	
Ante Partum Hæmorrhage	10
Abortions	2
Illness	7
	19
During Labour—	
Uterine Inertia	65
Malpresentations	20
Contracted Pelvis	4
Retained Placenta	9
Placenta Prævia	1
Post Partum Hæmorrhage	12
Ruptured Perineum	70
	181
During Puerperium—	
Rise of Temperature	13
Fits	1
Undefined Illness of Mother	34
Varicose Veins	3
	51
Total calls for mother	251

FOR CHILD.

Prematurity	32
Discharging Eyes	42
Cyanosis	3
Congenital Defects	10
Convulsions, etc.	5
Illness of Baby	20
Still-births	29
	141
Total calls for mother and child	392

In 21·2 per cent. of the midwives' cases the services of a doctor were requisitioned.

Claims from Doctors for Fees in respect to calls from Midwives :—

	Cases.
For forceps delivery	66
For post partum hæmorrhage	11
For illness of mother	34
For illness of child	31
For premature birth	15
For discharging eyes	24
Other	61
Total cases	242

As there was a total number of 392 calls for medical aid from the midwives, 61·7 per cent. of these calls were paid by the Local Supervising Authority.

One claim for *payment of midwife's fee* was received.

Ophthalmia Neonatorum.—The number of cases notified was 74, of which 69 were visited, the remainder being cases occurring in Hospital, or admitted to Hospital from outside areas. This number is an increase of 7 on that for 1927. The confinements were attended by:—

Doctors	35
Midwives	28
Maternity Hospital	4
Wingrove Hospital	3
Cases resident outside of the City sent into Hospital for treatment	4
	74

In four cases the children were born outside Newcastle area, and were sent into Hospitals in Newcastle for treatment, and notified from there as suffering from ophthalmia neonatorum.

363 visits were paid to the 69 cases in the City, and the ultimate results were:—

Recovered completely	63
One eye slightly defective	2
,, very defective	2
Died	1
Unable to trace	1
	69

The *ophthalmia incidence* per 1,000 births for the last eight years has been as follows :—

1921	13·0
1922	9·9
1923	11·0
1924	8·0
1925	8·0
1926	9·5
1927	10·7
1928	12·9

Puerperal Septicæmia and Puerperal Pyrexia.—78 cases were notified during the year—45 puerperal fever, and 33 pyrexia—33 of which were from outside the City area, and were admitted to Hospitals in the City. Of the remaining 45, 42 were visited. The following table shows the attendance at birth :—

	Puerperal Septicæmia.	Puerperal Pyrexia.
Doctors	9	13
Doctors and Midwives	3	2
Midwives	2	7
Princess Mary Maternity Hospital Staff	2	4
	16	26

VISITED CITY CASES TREATED IN HOSPITALS.

	No.	Deaths.
Puerperal Septicæmia	15	8
Puerperal Pyrexia	15	—

Deaths during the Puerperal Period.—During the year 27 deaths occurred in the City during the puerperal period, and the following table gives the causes and a comparison with the four previous years:—

CAUSES.	1928	1927	1926	1925	1924
Abortions	2	..	4	1	1
Accidents of Pregnancy	2	3	1	1	..
Puerperal Hæmorrhage	3	2	3	1	..
Other Accidents of Child-birth	4	5	1	2	6
Puerperal Fever	9	4	5	4	6
Puerperal Albuminuria and Convulsions	4	4	4	8	2
Puerperal Phlegmasia	1	2	1	1	..
Puerperal Insanity	1	..	..	..	..
Puerperal Disease of Breast	1	..	..	..	..
	27	20	19	18	15

I am, Sir,

Your obedient servant,

A. F. G. SPINKS, M.D.,

Maternity and Child Welfare Medical Officer.

Health Department,
Town Hall,
Newcastle-upon-Tyne,
8th June, 1929.

INCLUDING REPORTS OF THE
RESIDENT MEDICAL OFFICER OF THE
INFECTIOUS DISEASES HOSPITAL
AND THE BACTERIOLOGIST.

III.—INFECTIOUS DISEASE.

FEVERS, FOOD POISONING,
CITY HOSPITALS FOR INFECTIOUS DISEASES,
DISINFECTION, BACTERIOLOGY.

INFECTIOUS DISEASES.

NUMBER OF CASES PER 1,000 POPULATION IN 1928.

DISTRICT.	ATTACK-RATE PER 1,000 POPULATION.						
	Small-pox.	Typhus	Scarlet Fever.	Diphtheria.	Enteric Fever and Continued Fever.	Puerperal Fever.	Erysipelas.
England and Wales	0·32	..	2·61	1·55	0·09	0·06	0·42
NEWCASTLE-UPON-TYNE	**0·27**	..	**1·79**	**0·93**	**0·08**	**0·06**	**0·83**
Hull	0·24	..	3·34	2·26	0·02	0·05	0·51
Leeds	0·11	..	7·40	1·34	0·01	0·10	0·76
Bradford	0·45	..	5·36	0·97	0·05	0·10	0·61
Sheffield	0·12	..	5·44	1·60	0·09	0·16	0·70
Manchester	0·09	..	2·74	1·35	0·04	0·19	0·56
Salford	0·02	..	3·40	1·76	0·04	0·08	0·58
Liverpool	..	..	2·53	2·20	0·03	0·06	0·72
Nottingham	0·55	..	2·77	3·46	0·09	0·07	0·51
Leicester	0·36	..	8·00	1·41	0·02	0·22‡	0·57
Stoke-on-Trent	0·48	..	2·09	1·11	0·04	0·09	0·42
Birmingham	0·06	0·00	1·57	1·60	0·02	0·09	0·48
Cardiff	0·05	..	1·16	2·14	0·01	0·14	0·27
Bristol	0·13	0·00	3·10	1·53	0·11	0·06	0·31
Portsmouth	..	..	3·00	3·30	0·05	0·09	0·29
†London	0·07	0·00	3·45	2·74	0·13	4·09*	0·48
Gateshead	3·43	..	1·09	0·97	..	0·07	0·68
South Shields	7·31	..	1·43	0·42	0·02	0·04	0·39
Tynemouth	2·96	0·00	1·93	1·83	0·16	0·01	0·69
Sunderland	0·23	0·00	0·98	1·03	0·08	0·08	0·59
Middlesbrough	1·44	..	1·80	0·73	0·005	0·18	0·63
†Northumberland	..	..	1·70	0·45	0·09	0·04	0·46
†Durham	1·18	..	1·56	1·74	0·04	0·06	0·53

† Administrative County. * Per 1,000 births. ‡ Puerperal Fever and Pyrexia.

DEATHS (CORRECTED) FROM NOTIFIABLE INFECTIOUS DISEASES AND NON-NOTIFIABLE ZYMOTIC DISEASES, EXCLUSIVE OF TUBERCULOSIS.

WARD.	Diphtheria.	Erysipelas.	Scarlet Fever.	Typhus Fever.	Enteric Fever.	Cerebro-Spinal Fever.	Encephalitis Lethargica.	Poliomyelitis	Measles and Rubella.	Puerperal Fever.	Small-pox.	Whooping Cough.	Zymotic Diarrhœa (under 2 years of age).	Chicken Pox.
St. Nicholas'	..	..	..	..	..	..	..	..	..	..	..	1	..	..
St. Thomas'	..	..	..	..	..	..	..	..	..	..	..	..	1	..
St. John's	..	..	..	..	..	1	..	..	4	1	..	2	19	..
Stephenson	1	1	..	..	..	..	..	..	3	..	..	5	9	..
Armstrong	..	1	..	..	1	..	..	..	..	..	..	..	10	..
Elswick	1	1	..	..	1	..	2	..	4	..	..	..	2	..
Westgate	..	1	..	..	..	..	1	..	3	1	..	2	3	..
Arthur's Hill	..	2	..	..	..	..	1	..	1	1	..	..	..	..
Benwell	2	4	1	..	..	..	1	..	6	..	..	2	6	..
Fenham	..	..	..	..	..	..	..	..	2	..	..	3	1	..
All Saints'	..	2	..	..	..	..	..	..	3	2	..	8	4	..
St. Andrew's	1	..	..	..	1	..	..	..	2	..	..	6	2	1
Jesmond	..	1	..	..	..	1	..	..	..	1	..	..	..	..
Dene	..	1	..	..	..	..	1	1	..	..	..	3	..	..
Heaton	..	..	..	..	..	..	2	..	1	..	..	2	2	..
Byker	2	2	..	..	1	..	..	..	4	1	..	6	5	..
St. Lawrence	1	1	..	..	..	..	1	..	11	..	..	2	7	..
St. Anthony's	..	..	1	..	..	..	1	..	3	..	..	5	4	..
Walker	..	2	..	..	1	2	..	..	9	2	..	3	6	..
CITY	8	19	2	..	5	4	10	1	56	9	..	50	81	1

Note :—All deaths in Public Institutions have been allotted to the Wards to which they properly belong.

For particulars of deaths from **TUBERCULOSIS** see Section IV,

NOTIFIED CASES OF INFECTIOUS DISEASE AND DEATHS (GROSS).

EXCLUSIVE OF TUBERCULOSIS.

AGES OF CASES OF INFECTIOUS DISEASE NOTIFIED AND DEATHS REGISTERED DURING THE YEAR 1928.

NOTIFIABLE DISEASE.	AT AGES—YEARS.																GROSS TOTAL				NET TOTAL.		Cases admitted to Hospital.
	Under 1.		1 to 5		5 to 15.		15 to 25.		25 to 45.		45 to 65.		65 and upwards.		Ages not known.		1928.		1927.		1928.		
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases. *	Deaths.	
Diphtheria (including Membranous Croup)	3	..	66	6	147	4	30	1	22	..	3	..	..	..	..	..	271	11	228	20	262	8	185
Erysipelas	5	2	9	..	14	..	32	..	52	2	97	8	38	8	4	..	251	20	223	12	234	19	49
Scarlet Fever	..	..	124	2	317	..	50	..	22	..	1	..	1	..	..	..	515	2	876	6	506	2	452
Typhus Fever	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Enteric Fever	..	..	..	..	7	..	13	5	5	..	1	..	..	..	..	..	26	5	19	2	22	5†	25
Cerebro-Spinal Fever	2	2	2	2	4	1	2	1	1	..	3	1	..	..	1	..	15	7	8	3	10	4	5
Acute Poliomyelitis	1	..	3	..	1	..	1	1	..	..	..	..	..	..	..	..	6	1	4	1	6	1	1
Acute Polio-Encephalitis	1	1	2	2	..	..	..	..	..	..	..	..	..	..	..	..	3	3	1	1	2	2	..
Encephalitis Lethargica	..	..	..	..	3	..	5	1	8	6	9	5	..	..	1	..	26	12	21	11	20	10	2
Puerperal Fever	..	..	..	..	..	..	14	4	29	24	..	..	..	..	2	..	45	28	30	23	18	9	15
Puerperal Pyrexia	..	..	..	..	..	..	13	..	17	..	..	..	..	..	3	..	33	..	22	2	27	..	15
Ophthalmia Neonatorum	74	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	74	..	67	1	70	..	4
Pneumonia	189	78	555	57	302	25	119	9	186	45	135	68	47	41	4	..	1537	323	1582	375	1477	285	170
Malaria	..	..	..	..	..	..	..	..	3	..	1	..	..	..	..	..	4	..	4	..	4	..	..
Dysentery	2	..	34	2	20	7	..	..	7	..	3	1	..	..	..	..	66	10	..	..	60	7	42
Smallpox	..	..	3	..	12	..	13	..	13	..	30	..	9	..	..	..	80	..	116	..	76	..	78
‡Measles and Rubella	233	12	2109	36	1789	8	22	..	13	..	1	..	..	..	7	..	4174	56	3106	33	4160	56	98
°Chickenpox	76	1	418	..	988	..	19	..	6	..	1	..	..	..	26	..	1534	1	1505	2	1531	1	12
	586	96	3325	107	3604	45	333	22	384	77	285	83	95	49	48	..	8660	479	7812	492	8485	409	1133

* Cases from outside the City excluded for the purpose of calculating NET Death Rates.

‡ Ministry of Health Regulations, 1920. ° Temporarily notifiable. † Includes one inward transfer.

WARD DISTRIBUTION OF INFECTIOUS DISEASES (NET).

WARD.	Diphtheria.	Erysipelas.	Enteric Fever.	Scarlet Fever.	Cerebro-Spinal Fever.	Poliomyelitis.	Acute Polio-Encephalitis.	Encephalitis Lethargica.	Measles.	Rubella.	Puerperal Fever.	Puerperal Pyrexia.	Ophthalmia Neonatorum.	Acute Primary Pneumonia.	Acute Influenzal Pneumonia.	Smallpox.	Chickenpox.	Malaria.	Dysentery,	TOTAL.
St. Nicholas'	1	..	..	7	..	..	..	..	14	1	..	1	1	16	1	1	6	..	..	49
*St. Thomas'	16	17	2	32	1	1	1	..	80	6	1	1	2	36	2	1	37	1	..	237
St. John's	7	12	..	15	1	..	..	..	185	2	..	..	2	136	4	5	39	..	6	414
Stephenson	23	11	6	39	..	..	1	..	206	10	2	..	7	108	10	4	120	..	5	552
Armstrong	16	7	..	24	..	..	..	..	153	5	..	1	5	85	16	3	67	1	3	386
Elswick	9	9	1	22	1	..	..	3	162	2	..	..	2	38	7	4	69	1	1	331
Westgate	7	8	..	9	..	..	..	3	145	8	3	2	7	90	4	1	46	..	10	353
†Arthur's Hill	7	38	..	16	..	2	..	5	76	6	1	1	2	26	2	6	33	..	2	223
Benwell	33	25	1	36	..	..	..	3	476	5	1	1	9	134	15	2	112	..	4	847
Fenham	18	13	1	32	..	1	..	..	316	15	1	3	4	63	4	2	136	..	7	616
All Saints'	12	18	2	7	..	..	..	1	239	6	2	1	6	141	4	20	46	..	..	505
St. Andrew's	13	9	..	4	..	..	..	..	128	2	..	1	1	56	2	2	29	1	2	250
Jesmond	8	5	1	29	..	..	..	1	45	2	1	..	..	6	1	1	68	..	..	168
Dene	11	4	1	30	..	2	..	2	184	28	1	1	3	34	6	4	63	..	..	374
Heaton	5	3	1	23	..	..	..	..	223	10	..	..	6	30	..	6	77	..	2	386
Byker	20	13	1	26	1	..	..	..	301	12	1	5	5	68	1	7	94	..	2	557
St. Lawrence	16	11	..	22	1	..	..	1	243	10	2	2	3	69	..	1	124	..	..	505
St. Anthony's	11	14	2	23	1	..	..	1	205	1	..	2	..	70	..	1	122	..	3	456
‡Walker	29	17	3	110	4	..	..	..	638	10	2	5	5	190	2	5	243	..	13	1276
CITY	262	234	22	506	10	6	2	20	4019	141	18	27	70	1396	81	76	1531	4	60	8485

* Includes Royal Victoria Infirmary and Fleming Memorial Hospital for Sick Children.
† ,, Poor Law Institution and Wingrove Hospital.
‡ ,, City Hospital for Infectious Diseases, Walker Gate.

For particulars of cases of **TUBERCULOSIS**, see Section IV.

WARD INCIDENCE OF INFECTIOUS DISEASES (NET).

EXCLUSIVE OF TUBERCULOSIS.

WARD.	NOTIFIABLE DISEASES—Cases per 1,000 Population.																	DEATHS per 1,000 Pop.		
	Diphtheria	Erysipelas.	Scarlet Fever.	Enteric Fever.	Cerebro-Spinal Fever.	Poliomyelitis.	Acute Polio Encephalitis.	Encephalitis Lethargica.	Measles (including Rubella).	Puerperal Fever.	**Puerperal Pyrexia.**	Smallpox.	Chickenpox.	Ophthalmia Neonatorum.	Pneumonia.	Malaria.	Dysentery.	Measles. (including Rubella).	Whooping Cough.	Zymotic Diarrhœa (under 2 years of age).
St. Nicholas' ..	0·37	..	2·59	..	..	..	..	..	5·5	..	0·37	0·37	2·22	0·37	6·29	..	..	..	0·37	..
*St. Thomas' ..	1·17	1·24	2·34	0·15	0·07	0·07	0·07	..	6·3	0·07	0·07	0·07	2·71	0·15	2·78	0·07	..	..	..	0·07
St. John's	0·46	0·79	0·99	..	0·07	..	..	..	12·4	..	..	0·33	2·58	0·13	9·28	..	0·04	0·26	0·13	1·26
Stephenson ...	1·25	0·60	2·12	0·33	..	..	0·05	..	11·7	0·11	..	0·22	6·52	0·38	6·41	..	0·27	0·16	0·27	0·49
Armstrong	1·04	0·46	1·56	..	..	..	..	..	10·3	..	0·07	0·19	4·36	0·32	6·57	0·07	0·19	..	..	0·65
Elswick	0·72	0·72	1·75	0·08	0·08	..	..	0·24	11·1	..	..	0·32	5·51	0·16	3·59	0·08	0·08	0·32	..	0·16
Westgate	0·47	0·53	0·60	..	..	..	..	0·20	10·2	0·20	0·13	0·07	3·06	0·47	6·26	..	0·66	0·20	0·13	0·20
†Arthur's Hill ..	0·62	3·38	1·42	..	..	0·18	..	0·44	7·3	0·09	0·09	0·54	2·93	0·18	2·49	..	0·18	0·09	..	..
Benwell	1·81	1·37	1·98	0·05	..	..	..	0·16	26·4	0·05	0·05	0·11	6·14	0·49	8·18	..	0·22	0·33	0·11	0·33
Fenham	1·09	0·78	1·93	0·06	..	0·06	..	..	20·0	0·06	0·18	0·12	8·19	0·24	4·03	..	0·42	0·12	0·18	0·06
All Saints'	0·69	1·03	0·40	0·12	..	..	..	0·06	14·1	0·12	0·06	1·15	2·65	0·35	8·34	..	..	0·17	0·46	0·23
St. Andrew's ..	1·12	0·77	0·34	..	..	..	..	..	11·2	..	0·08	0·17	2·49	0·08	5·00	0·08	0·17	0·17	0·51	0·17
Jesmond	0·73	0·45	2·64	0·09	..	..	..	0·09	4·3	0·09	..	0·09	6·19	..	0·64	..	..	..	..	..
Dene	0·70	0·25	1·89	0·06	..	0·13	..	0·13	13·4	0·06	0·06	0·25	3·97	0·19	2·52	..	..	..	0·19	..
Heaton	0·33	0·20	1·51	0·07	..	..	..	..	15·3	..	..	0·39	5·06	0·39	1·97	..	0·13	0·07	0·13	0·13
Byker	1·16	0·76	1·51	0·06	0·06	..	..	..	18·2	0·06	0·29	0·41	5·47	0·29	4·02	..	0·12	0·23	0·35	0·29
St. Lawrence ..	0·91	0·62	1·25	..	0·06	..	..	0·06	14·4	0·11	0·11	0·06	7·04	0·17	3·92	..	..	0·62	0·11	0·40
St. Anthony's .	0·71	0·90	1·48	0·13	0·06	..	..	0·06	13·3	..	0·13	0·06	7·82	..	4·52	..	0·19	0·19	0·32	0·26
‡Walker	1·36	0·80	5·17	0·14	0·19	..	..	..	30·4	0·09	0·23	0·23	11·42	0·23	9·02	..	0·61	0·42	0·14	0·28
CITY	0·93	0·83	1·79	0·08	0·04	0·02	0·01	0·07	14·8	0·06	0·09	0·27	5·44	0·25	5·25	0·01	0·21	0·20	0·18	0·29

* Includes Royal Victoria Infirmary and Fleming Memorial Hospital for Sick Children. † Includes Poor Law Institution and Wingrove Hospital.

‡ Includes City Hospital for Infectious Diseases, Walker Gate.

For Particulars of **TUBERCULOSIS,** see Section IV.

HOUSEHOLDS AFFECTED WITH INFECTIOUS DISEASES,

EXCLUSIVE OF TUBERCULOSIS, MEASLES AND CHICKENPOX.

DISEASES.	HOUSEHOLDS WITH						Military or Naval Cases	Institutions *	TOTAL CASES. (Gross).	Cases from outside of City.	NET CASES.
	Single Cases	2 Cases each	3 Cases each	4 Cases each	5 Cases each	6 Cases and over					
Diphtheria (including Membranous Croup)	183	17	8	1	..	..	..	26	271	9	262
Erysipelas	176	6	..	..	..	..	..	63	251	17	234
Scarlet Fever	375	41	6	1	..	..	..	36	515	9	506
Enteric (or Typhoid Fever)	15	1	1	..	..	..	1	5	26	4	22
Cerebro-Spinal Fever	7	..	..	..	..	..	..	8	15	5	10
Poliomyelitis	6	..	..	..	..	..	..	..	6	..	6
Polio-Encephalitis	..	..	..	..	..	..	..	2	2	..	2
Encephalitis Lethargica	12	..	..	..	..	..	..	14	26	6	20
Puerperal Fever	18	..	..	..	..	..	..	27	45	27	18
Puerperal Pyrexia	27	..	..	..	..	..	..	6	33	6	27
Ophthalmia Neonatorum	63	..	..	..	..	..	..	11	74	4	70
Pneumonia	1335	50	4	3	..	..	..	78	1537	60	1477
Smallpox	43	4	2	1	..	..	..	19	80	4	76
Malaria	3	..	..	..	..	..	1	..	4	..	4
Dysentery	40	6	1	..	1	..	..	6	66	6	60
TOTAL	2303	125	22	6	1	..	2	301	2951	157	2794

* See next page.

Schools and Infectious Disease.—It was not found necessary to close any school on account of infectious disease during the year.

PUBLIC INSTITUTIONS AND INFECTIOUS DISEASE.

The following notifications were received during the year :—

INSTITUTIONS, &C.	Diphtheria.	Erysipelas.	Scarlet Fever.	Encephalitis Lethargica.	Measles and Rubella.	Puerperal Fever.	Puerperal Pyrexia.	Pneumonia.	Chickenpox.	Ophthalmia Neonatorum.	Enteric Fever.	Poliomyelitis.	Polio-Encephalitis.	Cerebro-Spinal Fever.	Smallpox.	Malaria.	TOTAL. *
Royal Victoria Infirmary....	1	19	8	6	1	16	2	54	2	3	5	..	2	6	3	..	128
Fleming Memorial Hospital..	16	4	7	..	14	..	..	6	3	..	..	..	..	1	1	..	52
Wingrove Hospital	..	34	6	7	21	2	..	11	61	1	..	..	..	..	5	..	93
City Hospital for Infectious Diseases (Staff)	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1
Deaf and Dumb Institution..	..	..	9	..	..	..	..	..	7	..	..	..	..	..	..	..	16
St. Joseph's Home	..	..	..	..	..	..	..	1	..	..	..	..	..	..	3	..	4
Maternity Hospital	..	1	..	..	..	9	4	..	..	..	..	..	..	..	1	..	15
Throat and Ear Hospital ...	..	1	1	..	..	..	..	1	..	..	..	..	..	..	..	..	3
Military Barracks	..	..	1	..	..	..	..	..	4	..	..	..	..	..	..	..	5
Northern Counties Orphanage	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Home for Incurables........	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4
War Pensions Hospital	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Eye Infirmary	..	..	..	..	..	..	..	..	..	7	..	..	..	..	..	..	7
Convent de la Sagasse......	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	2
Nursing Homes	..	..	2	1	..	..	..	..	..	..	..	..	..	..	..	..	3
Babies' Hostel, 33, West Parade	..	..	1	..	1	..	..	..	..	..	..	..	1	1	..	..	4
Common Lodging Houses ...	..	..	..	..	..	..	..	5	..	..	..	..	..	..	6	..	11
Royal Victoria School for the Blind	5	..	..	..	..	..	..	..	12	..	..	..	..	..	..	..	17
National Children's Orphanage	..	..	..	..	5	..	..	..	2	..	..	..	..	..	..	..	7
The Hostel, 17, West Parade.	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
TOTAL	26	63	36	14	43	27	6	78	37	11	5	..	3	8	19	..	376

* Does not include any cases belonging to the City which could properly be assigned to their homes.

MILK SUPPLY IN RELATION TO INFECTIOUS DISEASES.

The source of the milk supply was ascertained in every case of fever and diphtheria. In no instance was there reason to suspect that milk was responsible for the conveyance of infection.

6 cases of scarlet fever and 5 cases of diphtheria occurred at premises of various kinds, in connection with which business was carried on.

SCARLET FEVER.

Notifications of 506 cases were received during the year, and there were 2 deaths, equivalent to a mortality of 0·4 per cent. This figure is the lowest recorded in the City.

DIPHTHERIA.

262 cases were notified during the year, and 8 died, a case mortality of 3·1 per cent., as compared with 7·1 in 1927.

Antitoxin was distributed free to medical practitioners in the City as follows :—

Number of medical practitioners who made application for antitoxin	27
Number of phials of antitoxin supplied	145
Number of cases of diphtheria notified	262
Number of notified cases removed to Hospital	248
Number of Hospital cases in which antitoxin was injected prior to admission	21

The fatality of the disease in recent years is shown in the subjoined table :—

Year.	Diphtheria Cases. (All Forms.)	
	Number.	Case Mortality (per cent.).
1909	456	12·7
*1910	443	9·0
1911	507	7·5
1912	501	6·6
1913	368	7·6
1914	362	7·7
1915	275	9·5
1916	272	10·3
1917	226	14·6
1918	250	9·2
1919	320	6·9
1920	348	6·9
1921	353	6·2
1922	254	5·9
1923	200	5·0
1924	256	6·6
1925	187	3·7
1926	202	8·4
1927	225	7·1
1928	262	3·1

* Antitoxin first distributed gratis April, 1910.

Particulars of the type of the disease as noted in cases sent to hospital will be found later in the section dealing with the City Hospitals.

MEASLES AND RUBELLA.

4,160 cases (including 141 of rubella) were notified, and there were 56 deaths (corrected) in 1928, representing a death rate of 0·20 per 1,000 population, as compared with 0·11 in 1927, and a case mortality of 1·35 per cent. of notified cases (net).

DEATHS, 1928 (Corrected).

Month.	Years of Age.							Total.
	0-1.	1-2.	2-3.	3-4.	4-5.	5-10.	Over 10.	
January	..	..	..	..	..	1	..	1
February	..	..	..	..	..	..	..	..
March	..	..	..	..	..	..	..	..
April	..	..	1	..	..	..	..	1
May	2	1	..	..	..	1	..	4
June	1	2	1	1	..	2	..	7
July	2	4	..	1	..	1	..	8
August	..	1	..	1	..	1	..	3
September	1	1	1	..	1	1	..	5
October	1	..	..	1	..	..	..	2
November	2	6	1	..	1	1	..	11
December	3	4	5	..	2	..	..	14
Total	12	19	9	4	4	8	..	56

The following table shows the deaths in the various wards, and at different age periods :—

Ward.	Under 3 months.	3 and under 6 months.	6 and under 9 months.	9 and under 12 months.	1 and under 2 years.	2 and under 3 years.	3 and under 4 years.	4 and under 5 years.	5 and under 10 years.	Over 10 years.	Totals.
St. Nicholas'	..	..	..	..	..	..	..	..	..	..	..
St. Thomas'	..	..	..	..	..	..	..	..	..	..	..
St. John's	..	..	..	..	1	2	..	..	1	..	4
Stephenson	..	..	..	..	2	1	..	..	..	..	3
Armstrong	..	..	..	..	..	..	..	..	..	..	..
Elswick	..	..	..	3	..	..	..	..	1	..	4
Westgate	..	..	..	..	..	2	..	1	..	..	3
Arthur's Hill	..	..	..	1	..	..	..	..	..	..	1
Benwell	1	..	..	..	2	1	2	..	..	..	6
Fenham	..	..	..	..	1	..	..	..	1	..	2
All Saints'	..	..	..	..	1	..	..	1	1	..	3
St Andrew's	..	..	..	..	1	1	..	..	..	..	2
Jesmond	..	..	..	..	..	..	..	..	..	..	..
Dene	..	..	..	..	..	..	..	..	..	..	..
Heaton	..	..	1	..	..	..	..	..	..	..	1
Byker	..	..	..	1	2	..	..	..	1	..	4
St. Lawrence	..	..	2	2	4	1	1	..	1	..	11
St. Anthony's	..	..	..	..	..	..	1	1	1	..	3
Walker	..	..	..	1	5	1	..	1	1	..	9
Total	1	..	3	8	19	9	4	4	8	..	56

Each Health Visitor visited and revisited selected cases occurring in her district. By this arrangement each case is seen immediately on receipt of the notification, and advice is given regarding the nursing and isolation of the patient. The cases are kept under supervision until they recover, and should subsequent cases occur in the family they are recorded.

Measles Cases, including Rubella, notified during 1928.

Cases notified by Medical Practitioners	3,305
Cases found by Health Visitors	839
Cases notified by Parents	26
Cases found from Returns of Deaths	4
	4,174 gross.
	4,160 net.

Of the total number of measles cases notified, 3,804, in 2,868 households (or 91·1 per cent.) were visited by the Health Visitors, and 8,181 revisits were paid.

The following particulars refer to the cases visited :—

	Dwellings of					Total houses visited.
	1 room.	2 rooms.	3 rooms.	4 rooms.	More than 4 rooms.	
Families	410	884	752	615	207	2,868
Children	1,002	2,588	1,954	1,532	537	7,613
Cases	551	1,172	1,015	803	*263	3,804
Percentage of Cases to Children	55·0	45·2	51·9	52·4	48·9	49·7
Cases developing Pneumonia	34	43	23	18	2	120
Percentage of cases developing Pneumonia	6·2	3·7	2·3	2·2	0·8	3·2
Deaths from Measles	14	23	9	8	1	55
Cases notified as Measles, Death certified as due to Pneumonia, Bronchitis or Diarrhœa	6	3	3	3	1	16
Case Mortality per cent.	3·6	2·2	1·2	1·4	0·8	1·9

* In addition to the 263 cases, 326 cases were reported in better-class houses and were not visited. Amongst these no deaths occurred, so that the actual mortality rate in houses of more than 4 rooms was 0·3 per cent.

Medical Attendance.—In 96·9 per cent. of the cases visited a doctor was in attendance.

Condition of Patient.—In 88·3 per cent. of the cases visited the disease ran a normal course, but bronchitis, pneumonia or other complications developed in the remainder.

Attendance at Schools.—1,476, or 38·8 per cent. of the affected children visited had previously attended school, and 2,328, or 61·2 per cent. had never attended school. In connection with 1,425 of the latter cases, however, other children in the infected houses were scholars, equivalent to 37·5 per cent. of the total cases.

The following were the ages of children (visited) suffering from measles :—

Under 1 year	224
1–2 years	462
2–3 years	469
3–4 years	604
4–5 years	505
5–6 years	798
Over 6 years	742
	3,804

WHOOPING COUGH.

50 deaths occurred from whooping cough. The particulars are as follows :—

Month.	Years of Age.						Total.
	0-1.	1-2.	2-3.	3-4.	4-5	5-10.	
January	..	1	..	..	..	..	1
February	3	1	1	..	..	1	6
March	5	1	1	..	1	..	8
April	2	1	..	..	..	..	3
May	2	2	1	..	..	..	5
June	3	3	1	..	1	1	9
July	3	2	1	1	..	..	7
August	3	1	..	..	..	..	4
September	..	3	1	..	..	..	4
October	..	1	1	..	..	..	2
November	..	..	..	..	..	..	..
December	..	1	..	..	..	..	1
Total	21	17	7	1	2	2	50

The death rate in 1928 was equivalent to 0·18 per 1,000 population, as compared with 0·07 in 1927.

ENTERIC FEVER.

26 cases of enteric fever were discovered in the City during the year. Of these 22 were Newcastle cases, 4 of whom died. The remaining 4 patients had been admitted to the Royal Victoria Infirmary from outside districts. They were transferred to Walker Gate after the diagnosis of typhoid fever had been confirmed. One of them died.

Of the 22 City cases one was a member of the nursing staff of the Royal Infirmary. The infection in this patient had probably been contracted while attending on the "imported" cases mentioned above. In five cases the infection was traced to two cases in the same family who had been removed to the Tynemouth Union Infirmary. In the 16 other cases no definite source of infection could be ascertained ; they resided in different parts of the town.

FOOD POISONING.

Two outbreaks, which can be grouped under the heading of Food Poisoning, occurred during the year.

The first was associated with the drinking of lemonade, the second with the consumption of corned beef. The particulars are as follows :—

Lemonade Poisoning.—On Friday, 13th July, with a view to improving the working conditions of their staff in the warm weather then prevailing, the management of a large general stores in the City decided to provide cooling drinks for the employees on the following day. Accordingly a supply of lemonade crystals was purchased, and with these, sugar, and water, quantities of a lemon drink were made in twelve 2½ gallon enamelled buckets, and a large repainted bath of 15 gallons capacity. The liquid was allowed to stand in the vessels overnight. Apparently no use was made of this refreshment until about 10-45 on the Saturday morning, but from that time nearly all the employees who consumed it (about 70 in all) showed symptoms, more or less severe, pointing to metallic poisoning. In 56 cases the patients had to be removed to the Royal Victoria Infirmary, as the firm's staff nurse was unable to deal with them. The Health Department was informed of the occurrence about 12-30 p.m., and the Assistant Medical Officer of Health at once instituted inquiries. The lemonade being a common factor, suspicion was at once attached to it, and its issue was stopped. At first a rough analysis suggested oxalic acid poisoning, but subsequent inquiry and analysis of all the ingredients of the drink and of the vessels, showed that the illness was due to antimony compounds released by the action of tartaric acid, which is a normal constituent of the crystals from which the drink was prepared, on the enamel of the buckets, which was not of a high quality, and not likely to resist attack by the acid. Most of the patients after treatment were able to return to work in three hours. Two, however, were detained in the Infirmary over night, but none of them showed any after-effects. The buckets were supplied by a local firm of wholesale ironmongers, and were part of a batch of 40 dozen received in March from a German distributor in Hamburg. The consignment had been distributed throughout the two northern counties, and no further action could be taken with regard to them, but a statement was issued in the press pointing out the danger attending the manufacture and storage of acid and fruit drinks in vessels of this type.

Food Poisoning following upon the consumption of Corned Beef.—In four separate families which had purchased supplies of corned beef from a west end grocery store during the late afternoon of October 11th, 1928, there occurred 10 cases of acute food poisoning in the early evening of the same day, and during the course of the following morning. The onset of all these cases was within a couple of hours of consuming the corned beef, and they were characterised by severe vomiting and diarrhœa. Two of the cases required hospital treatment at the Wingrove Hospital, and two others were admitted to Walker Gate. The duration of the attack in every case was short, and all the patients were convalescent within three days. The source of the illness was definitely traced to one tin of corned beef which had been opened late on the afternoon of the 11th October, but unfortunately none of it remained when the shop premises were visited early on the following morning. Samples, however, were found in two of the households, and these, together with fæces and stomach contents, were bacteriologically examined. None of the bacilli generally associated with food poisoning were discovered. It is probable, however, that the outbreak falls into line with many others where no causal organism has been isolated. The method of infection in these cases is as follows :—

The pathogenic organisms, with which the raw material for preservation has been contaminated, are killed off in the process of canning, but the toxins which they set free are heat-resistant, and are able to act as a rapid and irritant poison when the food is eaten. Such attacks are generally short, and terminate immediately the poison is excreted from the system, as contrasted with the illnesses caused by the actual presence of bacillus, which continue as long as the germ finds material upon which it can live within the body of the person infected.

DIARRHŒA.

There were in all 116 deaths from the disease, equal to a death rate of 0·41 per 1,000 population, and this number included 81 deaths of children under two years of age.

TYPHUS.

No case of this disease occurred during the year.

SMALLPOX.

80 cases of smallpox occurred in Newcastle during the year, 4 of which were persons from outside areas, who attended, or were admitted, to Newcastle Hospitals and Institutions. 2 City cases were not removed to hospital. In addition, 4 outside cases of smallpox were admitted to the Smallpox Hospital at the request of the local authorities in whose areas they occurred.

The total of purely Newcastle cases, namely 76, is surprisingly small, considering the prevalence of the disease in other Tyneside towns, particularly South Shields and Gateshead. In 9 of the 76 cases the source of infection was traced outside the City boundary, to areas in which patients had been visiting or following their employment.

There were two deaths from cancer amongst the total of 82 smallpox cases admitted to the Smallpox Hospital. Though the cases of Smallpox met with were generally of the so-called " mild " variety, these fatalities serve to remind us that even in this type of the disease patients may suffer from definitely severe attacks, which in the presence of any other illness—as in these instances when the patients were suffering from cancer—may prove fatal, or at any rate necessitate a prolonged and tedious convalescence. It cannot be insisted too frequently that the so-called mildness of the present day type of smallpox is often a misnomer, and that those who prefer to have an attack of smallpox rather than be vaccinated are running grave risks. Several patients during the past year have suffered from unpleasantly severe attacks of the disease, which made them realise how much vaccination might have saved them. Such cases keep in our mind the fact that the present mild form is merely a phase in the periodic cycle of the disease, and that the older classical variety of smallpox may come into our midst with startling rapidity, if facilities are provided for its spread.

880 direct contacts were kept under supervision by the Sanitary Inspectors until the incubation period of the disease for each individual contact had expired. In addition 230 contacts were detained in the smallpox hospital—isolation side—for varying periods.

The following are the particulars, courteously furnished by the Clerk to the Guardians, of infant **Vaccination** in Newcastle during recent years. (Walker, which belongs to the Tynemouth Rural area for registration purposes, is not included).

Year.	Births Registered.	Successful Vaccinations	Unsuccessful Vaccinations	Exemption Certificates.	
				Number.	Percentage to Total Births
1905	7,958	7,264	27	65	0·8
1906	7,721	6,733	28	92	1·2
1907	7,610	6,702	16	94	1·2
*1908-12	35,265	27,240	114	3,398	9·6
1913–17	34,296	21,251	33	7,144	20·8
1918–22	34,372	19,011	95	9,262	26·9
1923–27	31,290	19,658	30	5,542	17·7
1928	5,780	4,320	19	912	15·8

* Vaccination Act, 1907, came into force.

The *Public Vaccinators* and *Vaccination Officers* for the various districts of the City are :—

Dene, Heaton and Byker Municipal Wards :—
Dr. J. MacRae, 4, Benton Terrace.
Deputy—Dr. A. Sutcliffe, 1, Lesbury Road.

St. Anthony's and St. Lawrence Municipal Wards :—
Dr. Richard Dagger, 1, Rothbury Terrace.
Deputy—Dr. Eric C. Dagger, 1, Rothbury Terrace.

Walker District :—
Dr. T. J. Ryan, Welbeck Road.
Deputy—Dr. MacHale, Welbeck Road.

All Saints', St. Nicholas', St. Andrew's, Jesmond, and St. Thomas' Municipal Wards :—
Dr. Frank Hawthorn, 10, Ellison Place.
Deputy—Dr. O. W. Ogden, 4, St. Mary's Terrace.

Fenham, Arthur's Hill, Westgate and St. John's Municipal Wards :—
Dr. A. M. Paterson, 1, Grove Street.
Deputy—Dr. H. L. Taylor, 242, Westgate Road.

Stephenson, Elswick, Armstrong and Benwell Municipal Wards :—
Dr. G. D. Newton, 105, New Bridge Street.
Deputy—Dr. J. B. Sinson, 105, New Bridge Street.

Wingrove Hospital :—
Dr. G. P. Harlan.

Vaccination Officers :—
Western—W. J. White, 24, Victoria Street,
Eastern—Wm. Garrett, 34, Harbottle Street.

CHICKENPOX

1,531 cases were notified. One of the patients died.

ERYSIPELAS.

234 cases of this disease were notified and there were 19 deaths.

PUERPERAL SEPTICÆMIA AND PUERPERAL PYREXIA.

45 cases were notified, with 9 deaths. Inquiries were made concerning 42 of these. 22 of the cases were attended by doctors.

INFLUENZA AND PNEUMONIA.

These diseases accounted for 330 deaths as against 442 last year.

Total deaths at age periods.

Under 5 years.	5-15.	15-25.	25-45.	45-65.	65 and over.	Total.
112	24	10	48	82	54	330

As will be seen from the above figures, 112, or 34 per cent., of the deaths occurred below the age of 5 years.

Appended is a statement of the total net deaths at all ages in the City from influenza and pneumonia during 1928 and the previous 16 years :—

YEAR.	INFLUENZA.	PNEUMONIA.
1912	18	248
1913	19	339
1914	22	424
1915	22	433
1916	36	392
1917	27	418
1918	680	540
1919	604	561
1920	90	468
1921	65	411
1922	273	495
1923	15	342
1924	105	415
1925	41	366
1926	49	291
1927	103	339
1928	45	285

1,477 cases of pneumonia, including influenzal-pneumonia, were notified. For the ages and ward distribution, see pages 105 and 106.

Of that number 1,368, or 93 per cent., were visited by Health Visitors. It was found that of these 1,368 visited cases, 964, or 70 per cent., were primary pneumonia, 136, or 10 per cent., were cases of influenzal-pneumonia, and 268, or 20 per cent., were cases of pneumonia following other diseases.

Sex.—58 per cent. of the cases were males.

Ages.—The ages of the 1,368 cases visited were as follows :—

Under 1 year	182
1–5 years	532
5–15 years	269
15–25 years	103
25–45 years	146
45–65 years	107
and over 65 years	29
	1,368

Of these, 227 were school children.

Housing.—238 cases occurred in 1 roomed dwellings, 540 cases occurred in 2 roomed dwellings, 315 cases occurred in 3 roomed dwellings, and 275 cases occurred in more than 3 roomed dwellings.

Type of House.—599 cases occurred in flats, 552 cases in tenements, and 217 in self-contained houses.

Previous History—

There was a previous history of	Measles	in 603 cases.
,, ,, ,,	Whooping Cough	in 398 cases.
,, ,, ,,	Influenza	in 254 cases.
,, ,, ,,	frequent winter Coughs and Colds	in 1,181 cases.
,, ,, ,,	Pneumonia	in 280 cases.
,, ,, ,,	Tuberculosis	in 41 cases.

Hospital Treatment.—170 cases of pneumonia were treated in the Infectious Diseases Hospital. The majority of these were from houses where there was overcrowding or other unsuitable home conditions. 22 of these patients died, giving a case mortality of 12·9 per cent.

Deaths.—238, or 17 per cent. of the visited cases of pneumonia died.

VENEREAL DISEASES.

Syphilis was certified as the cause of death in 16 cases.

The work of the treatment clinic has been continued successfully. 1,783 old and new cases attended 27,498 times as out-patients. 14 cases accounted for 487 in-patient days. Of the 1,016 new cases 343 were syphilis, 497 gonorrhœa, 8 soft chancre, and 168 were conditions other than venereal. 74 per cent. were males.

2,867 doses of salvarsan substitutes were administered to out-patients, and 11 to in-patients.

2,488 Wasserman reactions were carried out by the College of Medicine, and 125 microscopical examinations of pathological material were made by the College and 1,049 at the treatment clinic. The irrigation stations for males and for females in connection with the clinic have been in full use during the year.

43 medical practitioners in the City are qualified to receive free supplies of arseno-benzol compounds. 19 made application for these supplies during the year and 1,492 doses were given.

Newcastle Residents Notified as Attending other Centres.

Cases.—Syphilis, 10 ; gonorrhœa, 11 ; soft chancre, 1 ; conditions other than venereal, 6.

Attendances.—168.

Doses of salvarsan substitute given, 44.

In-Patients.—In-patient days, 20. Doses of salvarsan substitutes administered, 3.

Information as to ophthalmia neonatorum will be found in Section II. (The Child).

ENCEPHALITIS LETHARGICA.

During the year 1928, 26 notifications of encephalitis lethargica were received.

10 of these referred to patients in the post-encephalitic state of the disease. whose symptoms for the most part were those of the so-called Parkinsonian syndrome with mask-like face, tremors of the limbs, and mental deterioration. All these cases were investigated, and in every one a history of slight influenza or transitory diplopia occurring at a date some years previous was obtained. These apparently trivial illnesses had undoubtedly been atypical attacks of encephalitis lethargica; and upon them, after a greater or less interval, had followed a progressive retrogression in health, both bodily and mental. The approximate dates of the original attacks in this series were as follows :—2 in 1923 ; 3 in 1924 ; 3 in 1925 ; and 2 in 1926. The long interval between the primary attack and the development of sequelæ, the apparent cures and remissions, and the association of mild and fugitive influenza-like illnesses and diplopias with the very gravest forms of paralysis and mental disorder, are well recognised characters of this treacherous and horrible disease.

Of the remaining 16 notifications, 6 were definitely proved not to be encephalitis lethargica ; 2 proved cases were admitted to Walker Gate and died there ; one patient could not be traced; 4 died at home or in other institutions; 2 were entirely incapacitated, and 1, though still suffering from minor disabilities as a result of her infection, was sufficiently recovered to resume her old work.

Re-Survey of all Cases of Encephalitis Lethargica.—It is now ten years since encephalitis lethargica first appeared in Newcastle, and during the past year an opportunity has been found to make a re-survey of all cases of the disease known to have occurred in the City, or to have been reported therefrom since the commencement of the epidemic in 1919. Post-encephalitic cases have been placed as far as possible under the years in which their primary attack occurred.

As a result of these visits and investigations the whole series of 311 cases, of which records are now available, has been grouped in accordance with the classification employed by Dr. Allan C. Parsons in his report to the Ministry of Health, published in 1928. Patients who recovered are shown as (*a*) totally incapacitated, (*b*) suffering from sequels which interfere with their old occupation, (*c*) suffering from sequels which do not interfere with their old occupation, and (*d*) completely cured.

The cases have been divided into two categories: (*a*) those admitted to the City Hospital, and (*b*) those treated elsewhere—a few in other institutions, the majority at home. This has been done because the signs and symptoms of encephalitis lethargica are frequently produced by other conditions, some mild, such as constipation and neuritis, others, *e.g.*, cerebral hæmorrhage, cerebral tumours, tuberculosis and septic meningitis, even more fatal than the disease they counterfeit. It is only by calculating death, disability and recovery rates on cases definitely proved to have been encephalitis lethargica, that a true idea of the severity of that disease can be obtained. Accordingly it will be seen that although these various rates have been calculated for both groups of cases, those for the City Hospital will prove more reliable, as all non-encephalitic cases have been excluded from their totals, as the result of clinical, laboratory, and post-mortem investigations. The figures based on 109 traced and proved cases of encephalitis lethargica treated in the City Hospital from 1919 to 1928 speak for themselves—roughly 41 per cent. are dead, 16 per cent. are totally incapacitated (including 7 per cent. who are or have been in mental hospitals), 6 per cent. are able to do some light work, 19 per cent., though still suffering from minor disabilities, can follow their old occupations, from 17 per cent. to 18 per cent. are completely cured. The figures for the non-hospital cases are even worse. This is due in great part to the inclusion of many of the serious conditions mentioned above, but doubtless the fact that these cases may have lacked some of the careful treatment and attention the others received at Walker Gate, may have helped to diminish their prospects of recovery. The following table gives details of all the cases reported since 1919 :—

	HOSPITAL CASES.											NON-HOSPITAL CASES.						
							NUMBER OF PATIENTS.							NUMBER OF PATIENTS.				
YEAR.	Notifications.	Admitted.	Proved to be Encephalitis Lethargica.	Cases otherwise diagnosed Encephalitis Lethargica.	Total Hospital Cases.	Not traced.	Dead.	Totally incapacitated.	With Sequels interfering with usual occupation.	With Sequels not interfering with old occupation.	Cured.	Non-Hospital Cases.	Not traced.	Dead.	Totally incapacitated.	With Sequels interfering with usual occupation.	With Sequels not interfering with old occupation.	Cured.
1919.....	2	2	1	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..
1920.....	10	5	4	3	7	..	4	2 (2M)	..	1	..	5	..	3	1 (1M)	..	..	1
1921.....	17	6	4	1	5	1	..	2 (1M)	..	2	..	11	1	6	1	..	1	2
1922.....	7	4	2	..	2	..	..	2 (1M)	..	..	..	3	1	1	..	1	..	..
1923.....	12	2	1	..	1	..	1	..	..	..	..	10	2	4	2	..	..	2
1924.....	131	76	62	2	64	5	22	9 (3M)	3	14	11	55	6	21	8	1	8	11
1925.....	50	26	16	3	19	..	10	2 (1M)	1	1	5	24	5	8	5 (2M)	3	..	3
1926.....	46	15	10	3	13	2	4	..	2	2	3	31	7	16	5	2	1	..
1927.....	25	13	5	..	5	1	2	..	1	1	..	12	1	9	..	..	1	1
1928.....	11	3	2	..	2	..	2	..	..	..	..	8	1	4	2 (1M)	..	1	..
Total ...	311	152	107	12	119	10	45	17 (8M)	7	21	19	159	24	72	24 (4M)	7	12	20
					109							135						
Percentages based on 109 traced Hospital cases . .							41·3	15·6 (7·3M)	6·4	19·3	17·4							
Percentages based on 135 traced Non-Hospital cases							53·3	17·8 (2·9M)	5·2	8·9	14·8							

The figures in brackets, *e.g.*, (1M), indicate the number of Patients who are, or have been, in Mental Hospitals as a result of Encephalitis Lethargica.

ACUTE POLIOMYELITIS.

6 cases occurred in the City. There was one death. The remainder of the patients made a complete recovery.

CEREBRO-SPINAL FEVER.

10 cases were reported during the year, with 4 deaths.

DYSENTERY.

One of the epidemiological features of the year has been the discovery of a number of cases of bacillary dysentery throughout the City. This disease is one of the characteristic bowel disorders of tropical climates, but its presence in the temperate zone is not unfamiliar. The principal signs and symptoms of the disease are fever, abdominal pain, and the frequent passage of diarrhœic stools containing blood. The causal bacillus is excreted in the stools, and infection is generally conveyed by contaminated foodstuffs, dirty hands, contact with an actual case or carrier, and by means of flies. The first indication of the presence of this disease was found in a household in Cowgate, where five mild cases occurred almost simultaneously in March last. Prior to bacteriological examination, these had been regarded as cases of food poisoning. Later in April the sudden deaths of two children were investigated by the Coroner, and the result of the bacteriological examination showed that the cause of death was "Bacillary Dysentery."

In view of these incidents the medical practitioners of the City were requested to notify any cases presenting acute gastric or intestinal symptoms, particularly when the generally accepted signs of dysentery, namely, blood and mucus in the stools—were also in evidence. All cases notified were investigated, and out of 227 brought to notice, 66 in all, of whom six were extra-mural, were found to be cases of bacillary dysentery. Amongst these, ten deaths occurred, three being extra-mural cases.

The majority of the cases were treated in institutions, and 42 were admitted to the City Hospital, Walker Gate, where two died. The circumstances and history of all the cases were carefully investigated with a view to obtaining information as to the probable sources of infection. The possibility of the existence of carriers who might have acquired the disease while on foreign service, was also considered. Prolonged enquiries along these lines elicited no definite incriminable cause or source of the infection. The only outstanding features were that the disease did not attack to any extent infants under the age of one year ; that it was commonest among children from 1 to 5 ; most dangerous between the age limits of 5 to 15 ; that girls, on the whole, escaped infection to a greater extent than boys, and that the latter were generally more severely affected. Lastly, the disease appeared to bear some definite relations to overcrowding, Walker and Westgate being rather more severely involved than the other wards.

These facts as to the age and ward distribution of the cases are brought out in the tables on pages 105 and 106, and in the one that follows :—

	Under 1.		1–5.		5–15.		15–25.		25–45.		45 and over.		Totals.		
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	All.
Total No. of Cases ...	1	1	18	15	13	7	1	..	3	4	1	2	37	29	66
Fatal Cases	..	..	1	1	6	1	..	..	..	..	1	..	8	2	10
Non-Fatal Cases ...	1	1	17	14	7	6	1	..	3	4	..	2	29	27	56

Bacteriological investigations were carried out very systematically and no case was discharged from hospital or from supervision unless the stools which form the main material for transmitting the disease were free from the causal organism.

It is usual in an outbreak of this kind to find one particular organism as the cause of all the cases, but this series was peculiar in that no fewer than five types of the Flexner Dysentery Bacillus, the Sonne Bacillus, and a newly isolated germ which has been called the *Newcastle Bacillus,* have been found in association with the disease.

The distribution of these organisms among the cases is as follows :—

	WY	W	XY	Y	Z	Sonne.	Newcastle.	Unclassified.	Totals.
Total No. of Cases ..	1	18	3	2	27	11	3	1	66
Fatal Cases.........	1	1	1	..	1	2	3	1	10
Non-Fatal Cases	..	17	2	2	6	9	..	..	56

The question arises as to the significance of the outbreak. Are these cases a brand new manifestation of a disease hitherto unknown in the City, or have they always been present though in smaller numbers, and of a minor degree of severity ? The answer to this and to many similar questions is still being sought, because it is obvious that a disease with a mortality rate of 15·2 per cent. of those infected is no light matter. Further, the best hope of keeping this new invader within bounds, and of limiting its severity, lies in the careful investigation of all cases as they occur, and in the employment of patient research and enquiry.

CITY HOSPITAL FOR INFECTIOUS DISEASES, WALKER GATE.

Diseases Admitted—1928.

Sent in as	Number.	After Observation Proved to be :— Scarlet Fever.	Diphtheria.	Diphtheria Carriers.	Enteric Group Fevers.	Dysentery.	Measles.	Rubella.	Varicella.	Mumps.	Pertussis.	Epidemic Cerebro-Spinal Meningitis.	Other forms of Meningitis.	Poliomyelitis.	Encephalitis Lethargica.	Pneumonia.	Bronchitis.	Influenza.	Other Respiratory Diseases.	Erysipelas.	Skin and Septic Condition.	Puerperal Pyrexia.	Tonsillitis.	Gastro-enteritis.	Other Gastro-intestinal Diseases.	Ophthalmia Neonatorum.	General Diseases.	Injuries.	Unclassified.
Scarlet Fever	492	447	..	..	1	..	10	3	1	..	1	..	..	..	..	4	..	..	..	..	5	..	4	..	2	..	..	..	14
Diphtheria	242	4	183	9	..	1	5	..	..	..	..	..	..	..	..	1	1	..	7	..	..	..	22	..	3	..	1	..	5
Diphtheria Carriers	12	..	1	11	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Enteric Group Fevers	35	..	..	..	24	..	..	..	..	..	..	..	..	..	..	5	..	..	..	..	..	..	..	..	3	..	3	..	..
Dysentery	83	..	..	..	..	29	4	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	46	1	..	..	..	1
Measles	74	1	1	..	..	..	65	..	..	..	..	..	..	..	..	2	..	..	..	..	1	..	..	..	..	..	..	..	4
Rubella	2	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Varicella	12	..	..	..	..	..	..	..	11	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..
Mumps	2	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..
Pertussis	12	..	..	..	..	..	..	..	..	..	11	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Epidemic Cerebro-Spinal Meningitis	7	..	..	..	..	..	..	..	..	..	..	5	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..
Other forms of Meningitis	8	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	4	..	..	1	..	1
Poliomyelitis	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Encephalitis Lethargica	3	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Pneumonia	179	..	..	..	..	..	9	..	..	..	1	..	..	..	..	152	5	1	3	..	..	..	..	..	3	..	2	..	3
Bronchitis	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..
Influenza	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	..	..	..	..	..	..	..	..	..	..	..
Other Respiratory Diseases	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..
Erysipelas	54	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	49	4	..	..	..	..	..	..	..	1
Skin and Septic Condition	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..
Puerperal Pyrexia	8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7	..	..	1	..	..	..	..
Tonsillitis	6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	..	..	..	..	..	..
Gastro-enteritis	22	..	..	..	..	10	..	..	..	..	..	..	..	..	..	3	1	..	..	..	..	..	..	7	..	..	..	..	1
Other Gastro-intestinal Diseases	9	..	..	..	..	2	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	5	..	..	..	..
Ophthalmia Neonatorum	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..	..	..
General Diseases	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	3	..	..
Injuries	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..
Unclassified	9	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	8
Totals	1294	452	185	20	25	42	93	5	12	1	13	5	2	1	2	170	8	6	10	49	14	8	32	58	19	4	14	4	40

CITY HOSPITALS FOR INFECTIOUS DISEASES.

Accommodation.

Names and Situation of Hospitals.	Total Available Beds.
City Hospital for Infectious Diseases, Walker Gate (including Phthisis Pavilions, 62 Beds)	294
Smallpox and Isolation Hospitals, Town Moor	172

City Hospital, Walker Gate.

Year.	Population of the City.	Number of Beds at Hospital for Fever Cases.	Total Admissions (exclusive of Phthisis and Smallpox).	Percentage of Scarlet Fever, Diphtheria and Enteric Fever Cases Admitted to Cases Notified.
1890	182,866	104	219	21·3
1900	213,039	104	290	38·6
1909	263,064	172	1,090	78·0
1910	265,077	172	912	83·0
1911	267,261	172	1,110	83·1
1912	269,193	172	1,542	86·4
1913	271,295	172	1,286	88·3
1914	271,523	172	1,835	78·9
1915	278,107	232	1,886	90·5
1916	278,107	232	1,380	87·0
1917	278,107	232	1,303	87·5
1918	278,107	232	1,245	87·5
1919	275,099	232	1,370	84·3
1920	286,061	232	1,710	86·4
1921	278,400	232	1,683	82·4
1922	281,600	232	1,032	86·3
1923	283,800	232	991	92·6
1924	285,900	232	1,502	90·5
1925	286,300	*232	1,711	86·4
1926	284,700	*232	1,397	89·1
1927	288,500	*232	1,493	89·7
1928	281,500	*232	1,294	92·9

* 30 of these beds are at present occupied by Tuberculosis patients.

ĊITY HOSPITAL, WALKER GATE.

(Fever Pavilions).

Admissions during the year—1,294.

The *average daily number* of patients in the hospital was 82, exclusive of 87 cases of Phthisis.

Rate per cent. of cases removed to Hospital to cases notified.

	1890	1895	1900	1905	1910	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928
Scarlet Fever	18·4	33·0	35·0	50·1	84·5	91·3	94·5	91·9	99·3	88·0	85·7	82·3	84·7	91·9	90·4	85·0	86·6	88·6	91·9
Diphtheria	8·3	28·7	40·0	36·8	80·1	89·1	84·6	82·0	91·6	74·4	89·1	82·7	91·7	93·6	90·2	94·1	93·3	95·2	94·6
Enteric Fever	38·9	48·0	54·5	52·0	90·5	87·0	96·6	96·0	93·1	80·0	90·0	71·4	84·2	100·0	96·6	96·4	90·9	78·9	95·5
All cases of the above, together with Continued and Typhus Fever and Cerebro-Spinal Fever, etc.	21·3	34·6	38·6	47·8	83·0	90·5	87·0	87·5	87·5	84·3	86·4	82·4	86·3	92·6	90·5	86·0	87·2	89·7	91·8

Diseases and Mortality Rates.

MORTALITY OF CASES TREATED IN HOSPITAL AS COMPARED WITH CASES NOT REMOVED DURING 1928.

DISEASE.	HOSPITAL.			NOT REMOVED.		
	Total Cases. (Verified)	Deaths.	Case Mortality per cent.	Total Cases.	Deaths.	Case Mortality per cent.
Scarlet Fever	452	2	0·44	41	..	..
Diphtheria ...	185	9	4·86	14	..	..
Enteric Group of Fevers	25	5	20·0	1	1	100

Expenses of Maintenance.—Of the patients admitted, the expense of maintenance is charged as under :—

	CASES.
To the Newcastle Sanitary Authority	1,270
To private guarantors	10
Tyne Port Sanitary Authority	2
Other Local Authorities	12
TOTAL..................	1,294

Admissions and Deaths, 1928.

DISEASE.	ADMISSIONS.													DEATHS.												
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	TOTAL.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	TOTAL.
Scarlet Fever	50	61	51	28	35	29	21	42	34	40	28	33	452	..	..	..	..	1	..	..	1	..	..	..	..	2
Diphtheria	16	24	21	11	16	12	7	9	12	15	24	18	185	1	2	..	..	..	2	..	..	1	2	1	..	9
Diphtheria Carriers	2	6	2	1	..	2	..	..	..	2	..	5	20	..	..	..	..	..	..	..	..	..	..	..	..	..
Enteric Group Fevers	..	5	2	1	..	2	3	3	4	..	1	4	25	..	..	..	..	..	..	2	1	1	..	..	1	5
Dysentery	..	..	..	..	7	5	4	6	11	5	2	2	42	..	..	..	..	1	..	1	..	..	..	..	..	2
Measles	2	2	2	5	8	14	8	4	4	7	16	21	93	..	..	..	1	..	..	1	..	..	..	3	6	11
Rubella	..	..	1	1	..	2	..	..	..	1	..	..	5	..	..	..	..	..	..	..	..	..	..	..	..	..
Varicella	1	1	2	1	2	1	1	..	1	1	..	1	12	..	1	..	..	..	..	..	..	..	..	..	..	1
Mumps	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
Pertussis	..	1	3	..	1	3	3	..	1	..	..	1	13	..	1	..	..	1	2	..	..	..	..	..	1	5
Epidemic Cerebro-Spinal Meningitis	..	..	1	1	1	..	..	..	..	..	..	2	5	..	..	1	1	..	..	..	..	..	..	..	..	2
Other forms of Meningitis	..	..	1	..	..	..	..	..	..	..	1	..	2	..	..	1	..	..	..	..	..	..	..	1	..	2
Poliomyelitis	..	..	..	..	..	1	..	..	..	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	1
Encephalitis Lethargica	..	1	..	..	1	..	..	..	..	..	..	..	2	..	1	..	..	1	..	..	..	..	..	..	..	2
Pneumonia	14	13	12	17	12	9	13	17	7	17	12	27	170	..	2	1	..	1	1	..	3	1	1	1	11	22
Bronchitis	..	1	1	..	1	..	..	..	1	1	..	3	8	..	..	..	..	..	..	..	..	..	..	..	..	..
Influenza	1	..	..	..	..	..	..	..	1	1	3	..	6	..	..	..	..	..	..	..	..	..	..	..	..	..
Other Respiratory Diseases	1	2	1	1	1	2	..	1	1	..	..	..	10	..	..	..	..	..	..	..	..	..	..	..	..	..
Erysipelas	5	11	8	5	4	1	..	2	2	2	3	6	49	..	2	1	1	..	..	..	..	1	1	..	..	6
Skin and Septic Condition	1	2	2	..	..	2	2	..	1	..	1	3	14	..	..	..	..	..	..	..	..	..	..	..	..	..
Puerperal Pyrexia	1	..	1	..	..	..	..	..	1	2	2	1	8	..	..	..	..	..	..	..	..	..	..	..	..	..
Tonsillitis	2	1	2	2	1	2	2	4	4	6	5	1	32	..	..	..	..	..	..	..	..	..	..	..	..	..
Gastro-Enteritis	..	..	..	..	1	3	6	3	17	17	5	6	58	..	..	..	..	..	1	..	..	1	1	..	..	3
Other Gastro-Intestinal Diseases	2	2	1	2	1	..	..	4	2	2	2	1	19	..	..	..	..	..	..	..	1	..	..	..	..	1
Ophthalmia Neonatorum	..	..	..	..	..	..	..	..	..	2	1	1	4	..	..	..	..	..	..	..	..	..	..	..	..	..
General Diseases	2	1	3	1	1	..	..	..	1	2	2	1	14	..	..	..	..	..	..	..	..	..	1	1	1	3
Injuries	..	..	..	1	..	..	..	..	..	3	..	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..
Unclassified	4	4	2	4	6	2	1	5	3	6	2	1	40	..	..	..	..	..	..	..	..	..	..	1	..	1
TOTALS	104	138	119	83	99	92	71	100	108	132	110	138	1294	1	9	4	3	5	7	4	6	5	6	8	20	78

Length of Stay in Hospital of Fatal Cases.—The following cases *died within 24 hours of admission*—diphtheria, 3; dysentery, 2; pneumonia, 5; erysipelas, 1; gastro-enteritis, 1; acute infective endocarditis, 2; retro-sternal goitre, 1; while 1 case of pertussis, 1 case of pneumococcal meningitis and 4 cases of pneumonia died within 48 hours of admission to hospital.

Present Death Rates compared with those of Previous Years.

RETURN SHOWING THE NUMBER OF CASES OF
SCARLET FEVER, DIPHTHERIA, AND ENTERIC FEVER ADMITTED TO HOSPITAL
AND MORTALITY RATES PER CENT.

1891–1900.

YEARS.	NUMBER OF CASES ADMITTED TO HOSPITAL.			NUMBER OF DEATHS.			CASE MORTALITY PER CENT.		
	Scarlet Fever.	Diphtheria.	Enteric Fever.	Scarlet Fever.	Diphtheria.	Enteric Fever.	Scarlet Fever.	Diphtheria.	Enteric Fever.
1891-1895 ..	1105	92	277	34	26	51	3·1	28·3	18·4
1896-1900 ..	1087	103	442	41	21	86	3·8	20·6	19·5
1915–1924.									
1915-1919 ..	3,402	998	194	99	89	21	2·9	9·0	10·8
1920-1924 ..	3,919	1,037	78	37	73	9	0·9	7·5	11·6
1925-1928.									
1925.......	1,036	151	20	16	9	3	1·5	6·0	15·0
1926.......	831	153	23	15	15	2	1·8	9·8	8·7
1927.......	750	200	17	6	17	2	0·8	8·5	11·5
1928.......	452	185	25	2	9	5	0·4	4·9	20·0
4 years ..	3,069	689	85	39	50	12	1·3	7·3	14·1

Diphtheria.—Of the 185 cases admitted to Hospital, 151 were simple faucial or tonsillar cases, of whom 1 died, a case mortality of ·66 per cent.; in a group of 3 cases without mortality the infection was purely nasal; 5 faucio-pharyngeal cases had also involvement of the nasal passages, and 2, or 40 per cent., of these died.

There were 26 cases of laryngeal or tracheal diphtheria, of whom 6, or 23·1 per cent., died. In 9 of these cases the obstruction was so considerable as to require tracheotomy immediately upon admission to hospital —one case was operated on at the Royal Victoria Infirmary, the remainder at the City Hospital. Of these, 4 died—a case mortality of 44·4 per cent. The case mortality of the whole series of 185 cases was 4·86 per cent., the second lowest on record. Against this must be placed the high mortality of complicated types of the disease—those affecting the larynx and trachea, and the faucio-pharyngeal cases with nasal involvement.

Ignorance and failure of parents to recognise the serious significance of the early signs of diphtheria account very largely for the high death rate in these types of the disease. When diagnosed early, the disease can be arrested almost immediately by injection of antitoxin. On the other hand, delay permits the diphtheria germ to produce the innumerable complications which so often lead to a fatal issue.

Antitoxin is administered to all cases of diphtheria admitted to hospital which have not received the remedy at home.

Mixed Infections.—18 patients sent into hospital, or 1·4 per cent., were found on admission to be suffering from two or more distinct infectious diseases, as follows:—

Scarlet Fever with Diphtheria	4
Scarlet Fever with Varicella	5
Scarlet Fever with Pertussis	3
Scarlet Fever with Mumps	1
Measles with Varicella	1
Measles with Pertussis	2
Diphtheria with Scarlet Fever	1
Measles with Dysentery	1
	18

Cross Infection.—During the year only one patient or 0·1 per cent., of the total admissions, contracted a second infection in the wards of the hospital. This was a diphtheria patient who was infected with scarlet fever. The origin of this secondary infection was another case of diphtheria who was incubating scarlet fever on admission to hospital. The patient was treated with scarlet fever antitoxin, and made an uneventful recovery from both diseases.

" Return " Cases.—The following are details of the " return " cases of scarlet fever during the year :—

SCARLET FEVER.	" Infecting " Cases.		" Return " Cases.		" Infecting " Cases.
Total Admissions.	No.	Percentage.	No.	Percentage.	Average Day of Disease when Discharged.
452	7	1·5	6	1·3	29

SEASONAL OCCURRENCE.

QUARTER.	Total Scarlet Fever Admissions.	" Infecting " Cases.		" Return " Cases.	
		No.	Percentage	No.	Percentage.
January to March	162	3	1·8	3	1·8
April to June	92	..	..	..	..
July to September	97	1	1·0	1	1·0
October to December ..	101	3	3·0	2	2·0

Of the 7 " infecting " cases (*a*) 4 had no complications or discharges whilst in hospital, and remained " clean " after reaching home, while (*b*) 3 had no complications whilst in hospital but developed discharges after reaching home.

Of these classes, the average day of disease on discharge from hospital of the supposed infecting cases, and the period elapsing after that discharge and the onset of illness in the "return" cases, were as follows :—

Class (*a*)—29 and 9 days.
Class (*b*)—28 ,, 5 ,,

"RETURN" CASES FOR YEARS 1906–1928.

YEARS.	Total Scarlet Fever Admitted.	"Infecting" Cases.		"Return" Cases.	
		No.	Percentage.	No.	Percentage.
1906–10...	2,203	63	2·8	82	3·7
1911–15...	5,185	217	4·2	251	4·8
1916–20...	3,202	104	3·2	112	3·5
1921–25...	3,850	93	2·4	105	2·7
1926......	831	31	3·7	33	3·9
1927......	750	25	3·3	26	3·5
1928......	452	7	1·5	6	1·3

Hospital and Home "Isolation" Compared.

In order to determine the relative liability to further infection, subsequent to the first, in hospital and home-isolating households respectively, a careful record has been kept for sixteen years of the number of presumably susceptible persons in each invaded house, all, other than the original patient, below 12 years of age being so classed, and the proportionate incidence of secondary cases calculated.

Cases occurring within seven days of the "isolation" of the original case are not counted, as these probably acquired their infection before the influence of the "isolation" could be felt.

Hospital and Home "Isolation" compared.

Year	1913		1914		1915		1916		1917		1918		1919		1920		1921		1922		1923		1924		1925		1926.		1927.		1928.		16 Years.	
Patient "isolated" at.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital	Home.
Cases of Scarlet Fever treated	853	90	1404	311	1305	111	677	51	409	36	381	3	630	86	1105	184	1115	249	560	101	434	40	705	78	1036	179	831	134	750	100	410	40	12605	1793
"Susceptibles" in the homes of each class of patient	1131	53	1708	244	1462	86	800	8	509	17	450	20	726	47	1203	87	1401	147	647	50	563	16	807	32	1084	102	911	67	831	35	477	26	14710	1037
"Incidental" infections	69	3	78	28	85	7	33	2	25	..	18	..	59	1	69	5	88	16	37	5	31	2	34	3	74	10	32	3	41	5	20	1	793	91
Percentage of "incidentals" to "susceptibles"	6·1	5·7	4·6	11·5	5·8	8·1	4·1	25·0	5·0	..	4·0	..	8·1	2·1	5·7	5·7	6·3	10·9	5·7	10·0	5·5	12·5	4·2	9·4	6·8	9·8	3·5	4·5	4·9	14·3	4·2	3·8	5·4	8·8
"Return" Infections	29	..	84	..	55	2	21	1	20	..	14	..	22	..	49	3	30	7	7	1	17	1	29	..	23	..	34	1	26	..	6	..	466	16
Percentage of "returns" to "susceptibles"	2·6	..	4·9	..	3·8	2·3	2·6	12·5	3·9	..	3·1	..	3·0	..	4·1	3·4	2·1	4·8	1·0	2·0	3·0	6·2	3·6	..	2·1	..	3·7	1·5	3·1	..	1·3	..	3·2	1·5
Total of "incidental" and "return" infections	98	3	162	28	140	9	54	3	45	..	32	..	81	1	118	8	118	23	44	6	48	3	63	3	97	10	66	4	67	5	26	..	1259	106
Percentage of this total to "susceptibles"	8·7	5·7	9·5	11·5	9·6	10·5	6·7	37·5	8·8	..	7·1	..	11·2	2·1	9·8	9·2	8·4	15·6	6·8	12·0	8·5	18·7	7·8	9·4	8·9	9·8	7·2	6·0	8·1	14·3	5·4	3·8	8·6	10·2
Average number of rooms in the home per "susceptible"	2·1	6·9	2·2	4·1	1·9	4·8	2·0	18·5	2·1	5·2	2·2	6·2	2·5	4·8	2·2	7·5	2·1	6·0	2·1	6·9	2·1	9·9	2·3	8·8	2·3	5·8	2·3	7·6	2·3	10·5	2·7	6·7	2·2	6·1

For the purpose of this table a "return" case is counted to the year in which the "infecting" case was admitted, even though the latter may have been discharged, or the "return" case admitted, in the following year

Cases occurring subsequently to the seventh day of "isolation" of the original case, and prior to the release of the latter, are classed as "incidental" infections.

Cases occurring within 28 days after the release of the original case from "isolation" are classed as "return" infections.

The table on page 139A shows the results obtained.

OTORRHŒA AND RHINORRHŒA.

The work of the Consulting Oto-Rhinologist to the Hospital, Mr. W. Frank Wilson, in the treatment and supervision of scarlet fever cases complicated by rhinorrhœa or otorrhœa has been continued along the lines developed in recent years.

The incidence of these complications has been rather higher than in 1927, 56 cases occurring in the 452 total admissions for scarlet fever—a complication rate of 13·3 per cent., as contrasted with 11·9 per cent. in the previous year.

The distribution of these cases according as to whether or not they were treated with scarlet fever antitoxin and their respective average stay in hospital are shown in the following table :—

		Number of Cases.	Average stay in Hospital (days).
Non-Antitoxin Cases	Rhinorrhœa	13	34·7
	Otorrhœa	18	41·5
Antitoxin Cases	Rhinorrhœa	14	36·2
	Otorrhœa	11	47·9
Total		56	39·9

The average stay per patient of cases in this group was 39·9 days, as contrasted with the figure given for

1927, namely 42·4 days. This slight difference is probably to be attributed, not to any alteration in the treatment, but to the relatively milder type of the disease.

In the treatment of these patients it was found necessary to perform 14 operations for the removal of tonsils and adenoids, and 5 mastoid operations. These were performed without mortality, and all the cases healed rapidly after operation.

Subsequent Progress.—As in previous years, supervision of all cases of rhinorrhœa and otorrhœa has been maintained after their discharge from hospital, and 46 out of the total of 56 cases of this type have been visited at varying intervals. The results of these visits showed that amongst 24 cases of rhinorrhœa, 3 or 12·5 per cent. still had occasional slight nasal discharge, whilst 4 or 18·2 per cent. of the cases of otorrhœa had slight persisting deafness or discharge from the ear.

Included in the above patients visited were 13 tonsil and adenoid, and 2 mastoid cases. Of the former, 3 still had slight nasal discharge, but the mastoid cases were free from any discharge or other complication.

All the cases in which the nasal or aural discharge has persisted have been kept under observation by Mr. Wilson at the Out-patient Department of the Royal Victoria Infirmary.

Scarlet Fever Antitoxin.

Scarlet fever antitoxin has been used in the treatment of scarlet fever at the City Hospital since November, 1925, and been employed even more extensively during the year past, so that, of the 452 cases admitted, 177 (or 39·2 per cent.) received this form of treatment.

The total cases of scarlet fever, and the numbers and relative proportion of those given antitoxin treatment during 1926-1928, are as follows :—

	1926	1927	1928
Scarlet Fever cases admitted	831	741	452
Number treated with Antitoxin	78	172	177
Percentage treated with Antitoxin	9·5	20·3	39·2

Comparisons of cases treated by antitoxin with those in which this method of treatment has not been adopted require to be carefully scrutinised before they yield much information. Details as to the relative incidence of complications, and the average duration of stay in hospital of these two great groups of patients, further sub-divided into those in whom complications develop, and those who remain free, are given below for the year 1928 :—

	No. of Scarlet Fever Cases.	Percentage with Complications.	Percentage treated with Antitoxin.	Average duration in Days of stay in Hospital.		
				All Cases.	Complicated Cases.	Non-complicated Cases.
All Cases	452	24·3	39·2	29·3	37·7	26·6
Antitoxin treated Cases	177	27·1	100	30·9	40·75	27·3
Cases not treated with Antitoxin	275	22·5	Nil.	28·2	35·3	26·2

At first sight it would appear as if antitoxin treatment yielded less satisfactory results than when the antitoxin is withheld, but this discrepancy is easily explained. The very fact which leads one to treat a certain type of case with antitoxin, namely, its apparent severity, and the presence of toxœmia, is the one which in turn produces amongst that series a high complication incidence, and a longer duration of stay in hospital when contrasted with the milder cases in which antitoxin treatment is not necessary.

It is thus seen that strict statistical proof of the efficacy of the antitoxin is difficult to obtain, and could only be elicited by treating alternate cases, one with serum, the other without, regardless of the severity of the attack, over a comparatively long period of time. For humanitarian reasons this method of investigation is entirely out of the question. It is possible, however, to compare one year of mild scarlet fever with another similar year, and this has been done as regards 1928, when there were 452 cases with two deaths, and 1922—prior to the discovery of antitoxin—when, of the total of 560 cases, there were only three with fatal results. The following table gives particulars of the cases treated in these two years, both as regards the incidence of complications, and the length of stay in hospital.

SCARLET FEVER, 1922 and 1928.

YEAR.	Cases of Scarlet Fever. admitted.	Complicated Cases.	Rhinorrhœa.	Otorrhœa.	Adenitis.	Rheumatism.	Albuminuria.
1922....	560	177 (30·2%)	46 (8·2%)	42 (7·5%)	31 (5·5%)	13 (2·3%)	16 (2·8%)
1928....	452	110 (24·3%)	27 (5·9%)	29 (6·4%)	18 (3·9%)	1 (0·2%)	20 (4·4%)

YEAR.	Nephritis.	Cardiac.	Other Complications.	Average duration in Days of stay in Hospital.		
				All Cases.	Complicated Cases.	Uncomplicated Cases.
1922....	3 (0·5%)	14 (2·5%)	12 (2·2%)	32·5	40·1	29·8
1928....	2 (0·4%)	8 (1·7%)	5 (1·1%)	29·3	37·7	26·6

It will be noted that the total incidence of complications was greater in 1922 than in 1928 (30·2 per cent. of all cases, as compared with 24·3 per cent), and that septic complications—rhinorrhœa, otorrhœa and adenitis, were more prevalent (21·2 per cent. of all cases, as against 16·2 per cent., in the former year). Rheumatism was also more frequently encountered in the earlier series, though, on the other hand, late albuminuria and nephritis were commoner in 1928 (4·8 per cent., as compared with 3·3 per cent.).

The figures for the respective lengths of stay in hospital speak for themselves, and if in addition the table on page 146 is consulted, it will be seen that as a result of a conjunction of a comparatively mild type of scarlet fever, and the fact that the more severe cases are immediately combated with antitoxin, the average duration of all cases of scarlet fever in 1928 was 29·3 days, the lowest figure in the history of the hospital.

Alongside this not entirely conclusive, but very suggestive, statistical evidence in support of the efficacy of scarlet fever antitoxin, must be placed the very definite feeling on the part of the clinician that it is an absolutely indispensable remedial weapon in the treatment of certain cases of the disease. It is a common thing to find that many patients with severe toxæmia at the onset rapidly lose their signs and symptoms, even after a single dose of the serum, and escape all complications, or, if they are attacked by these, speedily recover without being retained in hospital for a lengthy period.

In a review of the results of antitoxin treatment for 1926 and 1927, which was given in the Annual Report of the latter year, it was shown that of 177 cases receiving antitoxin treatment on or before the 4th day of the disease, 28, or 15·8 per cent., developed complications, all of which were of minor importance, whereas of 53 cases treated with antitoxin on the 5th day or later, 35, or 66 per cent., were complicated. Of these 35 cases, 7 died, and several were the subjects of major toxic manifestation such as albuminuria and nephritis.

The results for 1928 are very similar. Out of a total of 144 cases receiving antitoxin on or before the 4th day, 27 contracted minor disabilities, and there was one death from toxæmia. This represents a complication incidence of 19·4 per cent. Thirty-three cases were given antitoxin treatment on the 5th day or later, and 16, or 48·5 per cent., of these suffered from various complications. These figures sufficiently indicate the advantage of early antitoxin treatment.

Opportunity has been found to investigate a complaint which is sometimes made against scarlet fever antitoxin, namely, that the cases so treated are more liable to exhibit complications at a later date., *i.e.*, after they have been discharged from hospital. Accordingly a review has been made of the 1928 antitoxin and non-antitoxin cases, from 4 to 12 months after their return to their homes. This has been done with a view to determining to what extent complicated cases in these two groups have shown any recurrence of the original complication, or the appearance of some additional disability which could be attributed to the attack of scarlet fever. As regards the non-complicated cases, the presence of any new feature, such as rhinorrhœa, otorrhœa, rheumatism, has been looked for.

The results can be tabulated as follows :—

COMPLICATED CASES, 1928.

	Cases Traced.	Percentage with recurrence of old Complication.	Percentage with new Complications.
Antitoxin Cases	37	8·1	10·8
Non-Antitoxin Cases	51	11·8	9·8

With regard to the non-complicated antitoxin cases, the number traced amounted to 122, and accordingly an identical number of non-antitoxin cases was visited. Care was taken to ensure that the two series of cases should be as comparable as possible, as regards the stage of the disease on admission to hospital. The following table gives the results of the enquiry :—

	Cases Traced.	Total Number developing Complications after Discharge from Hospital.	Percentage of Cases developing Complications after Discharge from Hospital.
Antitoxin Cases	122	23	18·8
Non-Antitoxin Cases	122	21	17·2

It should be borne in mind that the majority of these post-hospital complications are exceedingly mild, and that medical attendance has been but rarely necessary. From the figures quoted it would appear that the influence of scarlet fever antitoxin in delaying the appearance of complications has been overstated, and that actually both antitoxin and non-antitoxin cases suffer lightly and equally in this respect.

Ultra Violet Therapy.—The Ultra Violet Lamp at the City Hospital has continued to be useful in the treatment of various diseases, and the following is a summary of the treatment given :—

(*a*) Debility, Skin Diseases, Neuritis (among Staff)	6
(*b*) Tuberculosis :—	
Hip	1
Knee	1
Ankle	4
Lupus	2
Cervical Glands	4
Peritonitis	1
(*c*) Debility following :—	
Scarlet Fever	12
Pertussis	3
Paratyphoid	2
Measles with Impetigo	3

The majority of these cases were benefited by the treatment, especially where the condition was a local one affecting the skin.

During the year the lamp was not available for use for a period of nearly three months, owing to its requiring repairs and overhaul.

Average stay in Hospital during the last Twenty-One Years.

YEARS.	All Cases.		Scarlet Fever.		Diphtheria (including carriers).		Enteric Fever.		Other Diseases.	
Average	No.	Average Stay in Days	No.	Average Stay in Days	No.	Average Stay in Days	No.	Average Stay in Days	No.	Average Stay in Days
1908-12	1,054	46·7	599	51·7	326	41·3	68	46·3	61	29·6
1913-17	1,538	39·6	929	45·6	220	39·9	70	47·4	318	20·6
1918-22	1,408	31·2	758	37·1	215	43·2	15	46·6	420	16·8
1923-27	1,419	31·9	751	35·2	185	44·3	21	54·0	462	21·1
1928 ..	1,294	22·5	452	29·3	205	33·6	25	44·5	612	12·9

Staff Sickness.

Nursing Staff.—40 of the Nursing Staff were off duty owing to sickness for a total of 497 days. 5 suffered from influenza, 4 from tonsilitis, and 1 from measles.

Domestic Staff.—38 were off duty through sickness for a total of 452 days. 7 suffered from influenza, 2 from tonsillitis, and 6 from synovitis of knee.

It will be noted that there were no cases of scarlet fever, diphtheria, or the enteric group of fevers amongst the nursing or domestic staff. This freedom from the major infectious diseases is due to the steady pursuit of inoculation and immunisation against these diseases, which has been carried on during recent years. The great saving in health, time, and expense which has accrued from the adoption of these preventive measures will be sufficiently obvious without further comment.

Bacteriological Laboratory, City Hospital.

The following examinations were made in connection with the patients in the fever wards :—

Swabs for Diphtheria Bacilli	915
Other Examinations	51
Total	966

SMALLPOX AND ISOLATION HOSPITALS, TOWN MOOR.

92 patients were admitted to the Smallpox Hospital during the year. Of these, 83 were Newcastle cases, 4 were cases from districts outside Newcastle, who came through Institutions in the City, and the remaining 5 were

admitted at the request of the following local authorities, which refunded the expenses of treatment and maintenance :—

Blyth	1
Castle Ward	3
Newbiggin	1

Of the 92 patients admitted, 10 were found to be suffering from diseases other than smallpox, in accordance with the following table :—

Acne	1
Furunculosis	1
Generalised Dermatitis	1
Folliculitis	2
Vaccinia	1
Varicella	2
Syphilis	1
Erythema Nodosum	1

All these patients were vaccinated, and none of them became infected with smallpox.

Of the 82 smallpox cases two died. These were two male patients, aged 66 and 69 respectively, admitted from the Wingrove Hospital, suffering from cancer, upon which attacks of smallpox had supervened.

The following are details as to age and vaccinal conditions of the Newcastle and other cases :—

NEWCASTLE CASES.

Age.	No. of Cases.	Vaccinal Condition.
0-15	14	All unvaccinated.
15-25	12	8 unvaccinated, 4 vaccinated in infancy.
25-35	8	3 ,, 5 ,, ,,
35 and over	40	9 ,, 31 ,, ,,

EXTRA MURAL CASES.

Age.	No. of Cases.	Vaccinal Condition.
0-15	3	All unvaccinated.
15-25	1	
25-35	..	
35 and over	4	

230 direct contacts were admitted to the Isolation Hospital, and were detained for varying periods during the disinfection of their homes.

DISINFECTION, Etc.

8,079 cases of notifiable infectious disease have been inquired into by the Infectious Disease Inspectors and Health Visitors, and, with the exception of measles and chickenpox, the houses or rooms connected therewith disinfected by spraying with formalin. In connection with cases of tuberculosis, 629 houses, including 698 rooms, were similarly disinfected. 407 visits were made, and disinfection was also carried out in 153 special cases.

104 extra visits of supervision to cases treated at home were made by the Infectious Disease Inspectors.

92 visits were made to cases who had suffered from otorrhœa and rhinorrhœa whilst in hospital.

Inquiries were also made in connection with 1,110 smallpox contacts. These persons were kept under observation until the possible incubation period was over.

INFECTED ARTICLES TREATED IN THE DISINFECTING APPARATUS AT THE CITY HOSPITAL FOR INFECTIOUS DISEASES, WALKER GATE.

ARTICLES FROM CITY.		ARTICLES—HOSPITAL PROPERTY.	
1928	1927	1928	1927
20,042	23,079	13,954	20,210

11,183 articles of clothing, etc., were also disinfected at the Smallpox Hospital.

The staff have thus dealt with 45,179 articles at the two disinfectors during the year.

Fluid disinfectant, in half-pint tins, was given out free on the order of the special inspectors, for home use in connection with infectious disease. Every precaution was taken to ensure that the disinfectant was properly and economically used.

DISINFECTANTS DISTRIBUTED—1928.

FROM	FOR INFECTIOUS DISEASES.	FOR PHTHISIS.
	FLUID (½ pint tins.)	FLUID (½ pints.)
Health Department	186	....
Tuberculosis Dispensary	....	640
Corporation Yard, Benwell	40	....
TOTAL	226	640

BACTERIOLOGICAL INVESTIGATIONS, 1928.

The following is a summary of the bacteriological investigations carried out on behalf of the Health Department of the Newcastle Corporation, at the Public Health Laboratory (University of Durham College of Medicine), Armstrong College.

6,103 specimens were submitted for examination. The nature of the investigations and the results obtained were as follows :—

	DIPHTHERIA.			PHTHISIS.			AGGLUTINATION TESTS FOR THE ENTERIC FEVERS.		
	Total.	Positive.	Negative.	Total.	Positive.	Negative.	Total.	Positive.	Negative.
No. of Examinations	1386	165	1221	706	114	592	65	* 24	41
Percentage positive	..	11·9	..	..	16·1	..	..	36·9	..

* Of these positive results:—

18	agglutinated	B. typhosus.
1	,,	B. paratyphosus A.
5	,,	B. paratyphosus B.

MILK EXAMINATIONS:—

	Total.	Found.	Not Found.	Percentage positive.
1. For the tubercle bacillus	376	14	362	3·72

2. Bacterial content of organisms other than the tubercle bacillus (the colon bacillus being taken as the indicator):—

Colon bacilli not found in 1 cc. or less	8
Colon bacilli found in 1 cc., but not in less	65
Colon bacilli found in 0·1 cc., but not in less	57
Colon bacilli found in 0·01 cc., but not in less	29
Colon bacilli found in 0·001 cc., but not in less	7
Colon bacilli found in 0·0001 cc., but not in less	12
Colon bacilli found in 0·00001 cc., but not in less	11
	189

3. A series of examinations were carried out on samples of milk purchased from a number of automatic slot machines erected in the West End of the City for the sale of milk. The following is a summary of the results obtained:—

MONTH.	No. of Samples Examined.	BACILLUS COLI TEST.				Equal to Grade "A"	Not Equal to Grade "A" Standard.
		Not found in 1·0cc.	Found in 1·0cc.	Found in 0·1cc.	Found in 0·01cc.		
February .	8	3	2	2	1	7	1
March	8	3	2	1	2	6	2
April	7	1	1	..	5	2	5
May	8	1	2	1	4	2	6
June	4	..	..	1	3	1	3
July	5	..	..	3	2	3	2
August ...	1	..	..	..	1	..	1
TOTAL.....	41	8	7	8	18	21	20

4. 200 samples of "Graded Milk" were examined during the year in accordance with the scheme of the Ministry of Health under the Milk and Dairies (Amendment Act, 1922, and Milk (Special Designations) Order, 1923. The following is a summary of the results obtained :—

	Satisfied the Test.	Failed to satisfy the test.
"Certified" Milk	43	8
"Grade A" Milk (Tuberculin tested)......................	115	22
"Grade A" Milk	9	3
	167	33

WATER EXAMINATIONS :—

Class I. (Colon bacilli not found in 100 cc. or less).....	113
Class II. (Colon bacilli found in 100 cc. but not in less)	47
Class III. (Colon bacilli found in 10 cc. but not in less)	16
Class IV. (Colon bacilli found in 1 cc. but not in less)..	11
	187

During the month of July 16 samples of water were examined from dysentery-affected houses and detailed reports were furnished at the time. The summary of the colon bacilli content is included in the table above.

During the month of August 19 samples of water were examined from the several Corporation Swimming Baths in the City, and the following is a summary of the results obtained :—

Class I. (colon bacilli not found in 100 cc. or less)	8
Class II. (colon bacilli found in 100 cc. but not in less)	4
Class III. (colon bacilli found in 10 cc. but not in less)	5
Class IV. (colon bacilli found in 1 cc. but not in less)	2
	19

One sample of water was also received from the domestic supply at Barrasford Sanatorium during the month of September, and a detailed report was furnished at the time.

SHELL FISH.

4 samples of oysters and 4 samples of mussels were submitted for bacteriological examination, and reports were furnished at the time.

VENEREAL DISEASES :—

	Total.	Serological reactions.	Microscopical examinations.
From Treatment Centres	1,389	1,389	..
From Private Practitioners ...	1,224	1,099	125
TOTAL	2,613	2,488	125

OTHER EXAMINATIONS :—

(*a*) In addition to the daily routine examination of swabs for **B. diphtheria, virulence tests** of the diphtheria bacilli isolated from throat cultures were carried out in 8 cases :—

6 cases proved virulent.
2 cases proved non-virulent.

(*b*) **Enteric Fevers.**—The following specimens of fæces were received and examined for organisms of the enteric group :—

From the City Infectious Diseases Hospital	81 specimens.
From the City Health Department .	10 specimens.

The latter specimens were from suspected "carriers," and all proved negative.

Of the specimens received from the City Hospital,

B. typhosus was isolated from...........	2 specimens.
B. paratyphosus B. was isolated from	18 specimens.
Negative specimens	61

Other organisms isolated were :—

B. pyocyaneous..................................	11
B. Morgan No. 1	9
Late lactose fermenter	2

and B. dysenteriæ Sonne type III. was isolated from a paratyphosus B. case; B. dysenteriæ Flexner type Z was isolated from a paratyphosus B. case.

4 specimens of urine from suspected "carriers" were submitted for examination for organisms of the enteric group, and all proved negative.

(*c*) **Food Poisoning.**—7 specimens of fæces or vomit were submitted for examination for organisms of the food-poisoning group. No food-poisoning organisms were isolated, but the following organisms were recovered :—

B. dysenteriæ (Flexner) type Z	from 1 case.
B. Morgan No. 1	from 1 case.
Late lactose fermenters	from 2 cases.
B. Fæcalis alkaligenes	from 2 cases.

10 samples of food were submitted for examination for organisms of the food-poisoning group. All proved negative, and no pathogenic organisms of any kind were isolated.

(*d*) **Bacillary Dysentery.**—In the early part of the year, owing to a number of cases of sudden deaths among children with symptoms of acute gastro-enteritis, a circular letter, dated 19th April, 1928, was sent by the Medical Officer of Health to the general practitioners in the City, asking them to notify all such cases. As a result a number of specimens of fæces were examined for dysentery and food-poisoning organisms, and in cases of death, the colon and small intestine taken at the post-mortem were also sent for bacteriological examination.

The following results were thus obtained :—

Total number of stools suspected of dysentery received during the year :—

From the City Health Department	52
From the City Infectious Diseases Hospital	100
	152

Summary—From the Health Department :—

B. dysenteriæ (Flexner) bacilli were isolated in	14 cases.
B. dysenteriæ, Sonne, type III., were isolated in	9 cases.
Negative specimens	29
	52

From the City Infectious Diseases Hospital :—

B. dysenteriæ (Flexner) bacilli were isolated in	25 cases.
B. dysenteriæ, Sonne, type III., were isolated in	4 cases.
Negative specimens	71
	100

The following organisms were also recovered :—

B. Morgan No. 1 in	18 cases.
Late lactose fermenters in	5 cases.
B. proteus in	2 cases.

Specimens from a total of 17 post-mortem cases were received and examined, the results being as follows :—

In 5 cases no pathogenic organisms were isolated.

In 5 cases B. dysenteriæ (Flexner) bacilli were isolated.

In 2 cases B. dysenteriæ, Sonne, type III., were isolated.

In 2 cases "Newcastle dysenteriæ bacilli" were isolated.

In 2 cases B. proteus was isolated.

In 1 case B. paratyphosus B. was isolated.

The following types of Flexner dysentery bacilli were isolated from specimens received from all the various sources :—

Flexner Dysentery Bacilli Type.	Health Dept. Specimens.	City Hospital Specimens.	Post-mortem Specimens.	Food-Poisoning Specimens.	TOTAL.
V......	..	..	..	..	..
W.....	4	12	2	..	18
WY...	1	..	1	..	2
X	..	..	..	..	..
XY ...	2	..	1	..	3
Y.....	1	..	..	..	1
Z	6	13	1	1	21
TOTAL ...	14	25	5	1	45

As a result of the examinations of specimens for dysentery bacilli, the writer and Dr. Clayton have isolated an organism which differs from the usual dysentery bacilli, and which we think may be the cause of some cases of dysentery. We have now decided to call this organism the "Newcastle dysentery bacillus." A paper concerning this organism is published in the "Journal of Hygiene," Vol. 28, p. 355 (Feb., 1929), and a further paper is now in the course of preparation.

(*e*) **Brucella abortus (Bang).**—The following group of specimens were received and examined from a case of infection with B. abortus (Bang), in accordance with a paper subsequently published in the "Lancet," dated February 23rd, 1929.

1 cultural examination of specimen of blood.
2 specimens of fæces.
1 specimen of urine.
2 agglutination tests.
1 sample of milk inoculated.

(*f*) **Miscellaneous.**—The following specimens were also received and reports furnished :—

1 cultural examination of specimen of blood.
1 blood examination for malaria parasites.
6 specimens of cerebro-spinal fluid.
1 nasal swab.
1 eye swab.
4 specimens of sera for B. dysenteriæ.
2 specimens of sera for food-poisoning group.

S. H. WARREN,
M.R.C.S. Eng., D.P.H. Lond.
Director, Public Health Laboratory.

University of Durham College of Medicine,
Newcastle-upon-Tyne.
3rd April, 1929.

REPORTS OF THE
TUBERCULOSIS MEDICAL OFFICER
AND THE
MEDICAL SUPERINTENDENT OF BARRASFORD SANATORIUM.

IV.—TUBERCULOSIS.

TUBERCULOSIS DISPENSARY.
INSTITUTIONAL TREATMENT.

TUBERCULOSIS.

Report of the Tuberculosis Medical Officer.

To the Medical Officer of Health.

Sir,

I beg to submit herewith my report on the work of the Tuberculosis Section for the year 1928.

The general plan of the report is similar to that of last year, and includes most of the information required by Memo. 37/T.

There has been a slight increase in the notifications, but the death rates of both pulmonary and non-pulmonary tuberculosis are the lowest ever recorded in Newcastle-upon-Tyne.

During the year 61 home visits were carried out by the Tuberculosis Medical Officer; these were made with the object of examining patients too ill to come to the Dispensary, and also to see home conditions and contacts.

By arrangement with the National Association for the Prevention of Tuberculosis, the City was visited for a week by a lecturer with an Educational Caravan. Lectures were given each evening, and were illustrated by cinematograph films and lantern slides. These lectures were delivered in halls and institutions in all parts of the City. They were well attended and appreciated, and it is certain that the audiences carried away with them useful information regarding both the prevention and treatment of tuberculosis.

During the year the building of a new ward block was commenced at Walker Gate; this ward will take the place of a temporary structure, containing 30 beds, which has been used since January, 1924, and when completed the new ward will accommodate 44 beds.

During the year 19 patients were transferred from the Sanatorium Pavilions, Walker Gate, to Barrasford Sanatorium. These patients were not well enough when first seen to go straight to Barrasford, but improved sufficiently after treatment at Walker Gate to warrant their transference.

The X-ray installation at Walker Gate continues to give invaluable service. During the year 388 films were taken and 353 patients screened.

No action was necessary under the Public Health (Prevention of Tuberculosis) Regulations of 1925, as no patient suffering from pulmonary tuberculosis was employed in handling milk.

No action was necessary under the Public Health Act of 1925, Section 62 (Compulsory removal of sufferers to Hospital).

The Voluntary Tuberculosis Care Council continues to do excellent work by helping needy cases with nourishment, clothing and bedding, and sending delicate children, contacts of infectious cases, for convalescent home treatment.

Yours faithfully,

George Hurrell, M.D., D.P.H.,
Tuberculosis Medical Officer.

30*th May*, 1929.

REPORT.

Notifications.—874 notifications were received during the year but some were duplicates, so that the total number of new cases was 788, of whom 508 were certified to be suffering from "pulmonary" and 280 from "non-pulmonary" tuberculosis.

The details as regards sex and age are given in the accompanying table.

SUMMARY OF NOTIFICATIONS DURING THE PERIOD, 1ST JANUARY to 31ST DECEMBER, 1928.

AGE PERIODS.	Primary Notifications.												Total Notifications (including Cases previously notified by other doctors).	Number of Notifications on Form " B."					Number of Notifications on Form " C."		Number of Notifications on Form " D."	
														Primary Notifications.				Total Notifications (including Cases previously notified by other doctors).	Poor Law Institutions.	Sanatoria.	Poor Law Institutions.	Sanatoria.
	0 to 1.	1 to 5.	5 to 10.	10 to 15.	15 to 20.	20 to 25.	25 to 35.	35 to 45.	45 to 55.	55 to 65.	65 and upwards.	TOTAL.		Under 5.	5 to 10.	10 to 15.	TOTAL.					
Pulmonary—																						
Males	3	20	14	8	22	54	50	62	35	26	5	299	319	During the year the School Medical Officers referred all suspicious cases to the Tuberculosis Medical Officer.					28	270	33	204
Females	..	9	15	15	35	29	43	36	15	10	2	209	241						32	152	28	107
Non-Pulmonary—																						
Males	9	32	40	16	14	6	6	7	9	2	1	142	165						30	13	33	14
Females	3	34	30	20	14	16	8	7	4	1	1	138	149						18	6	14	6
TOTALS	15	95	99	59	85	105	107	112	63	39	9	788	874						108	441	108	331

Form " A."—Notification by any Medical Practitioner of a case of Tuberculosis (whether at an Institution or otherwise).

Form " B."—Notification by School Medical Officers of cases of Tuberculosis in children attending Public Elementary Schools of which he has become aware in the course of inspection.

Form " C."—Notification by the Medical Officers of Poor Law Institutions and Sanatoria of persons admitted who are suffering from Tuberculosis.

Form " D."—Notification by the Medical Officers of Poor Law Institutions and Sanatoria of persons discharged who are suffering from Tuberculosis.

" Primary Notifications " are all new cases coming to the knowledge of the Medical Officer of Health during the year, whether on Form " A " or from other sources.

As far as possible every notified case is visited by the nurses and urged to visit the Dispensary for examination and classification with a view to treatment.

Of the 788 cases notified, 486 attended the Dispensary and 164 others were visited in their homes by the Health Visitors in the course of the year. The names of the patients certified to have died from tuberculosis, but not previously notified, are entered in the notification register, so that if the 45 patients in this category be deducted it will be seen that the Dispensary gets into touch with most of the known cases of tuberculosis.

With reference to the 93 cases neither examined at the Dispensary nor visited by the nurses, some were living in institutions, or died before they could be visited, while others were notified at the end of the year, and were visited early in 1929.

A table has been prepared to illustrate these points, and also to show the nature of the institutional treatment afforded to the cases notified during 1928. While 198 of the 508 patients notified as suffering from pulmonary tuberculosis were treated in beds belonging to, or controlled by the City Council, it is particularly noteworthy that only 14 out of a total of 280 patients notified as suffering from forms of tuberculosis other than pulmonary were treated in such beds.

The number of patients dying in the year of notification is also given, and it will be seen that 27·2 per cent. of all the new cases died in the same year as they were notified.

Notifications of Tuberculosis during 1928.

Part Affected.	Notifications.	Attended Dispensary.	Visited by Nurse but *not* attended Dispensary.	Received Institutional Treatment.				Died during the Year.
				Barrasford Sanatorium.	Sanat. Pav. Walker Gate.	Stannington Sanatorium.	Total.	
Pulmonary (Male) ..	299	214	43	62	64	4	130	84
,, (Female).	209	143	43	25	40	3	68	63
Non-Pulmonary—								
(Male)	142	67	36	..	2	3	5	30
(Female)	138	62	42	..	3	6	9	37
TOTAL	788	486	164	87	109	16	212	214

The cases re-admitted to the Sanatorium Pavilions, Walker Gate, and transferred to Barrasford Sanatorium during the year, are counted as only receiving treatment on one occasion.

During the year 145 cases (over 18 per cent. of the total) were notified by the Dispensary Medical Staff.

Non-notified deaths from pulmonary tuberculosis were 21, equal to 7·1 per cent. of deaths.

Non-notified deaths from non-pulmonary tuberculosis were 24, equal to 31·2 per cent. of deaths.

Practitioners were written to by the Medical Officer of Health when notification appeared to have been neglected.

Public Health (Tuberculosis) Regulations, 1924.

Number of Cases of Tuberculosis remaining on the Notification Register at end of Year.

Year.	Pulmonary.			Non-Pulmonary.			Total Cases.
	Males.	Females.	Total.	Males.	Females.	Total.	
1925......	855	608	1,463	340	312	652	2,115
1926......	744	515	1,259	297	263	560	1,819
1927......	644	441	1,085	236	204	440	1,525
1928......	720	443	1,163	294	254	548	1,711

Deaths.—431 deaths were registered as due to some form of tuberculosis, and of these 304 were certified as due to pulmonary tuberculosis and 127 to other forms of the disease.

On these figures the death rates per 1,000 population were :—

	Number of Deaths.	Death Rate per 1,000 Population.
Pulmonary Tuberculosis	304	1·08
Non-Pulmonary Tuberculosis	127	0·45
Total Tuberculosis Death Rate (uncorrected)	431	1·53

It must be noted, however, that 19 residents of Newcastle died in other parts of the United Kingdom from tuberculosis (13 pulmonary; 6 non-pulmonary), while 78 of the deaths (22 pulmonary; 56 non-pulmonary) registered in Newcastle were those of temporary residents.

The corrected deaths and death rates per 1,000 of the population were :—

	Number of Deaths.	Death Rate per 1,000 Population.
Pulmonary Tuberculosis	295	1·05
Non-Pulmonary	77	0·27
All forms of Tuberculosis (corrected)	372	1·32

The details as regards sex and age, together with the form of the disease, are given in the accompanying table :—

DEATHS FROM TUBERCULOSIS.—Sex and Age Distribution.

	Under 1 year.		1 to 5		5 to 10		10 to 15		15 to 20		20 to 25		25 to 35		35 to 45		45 to 55		55 to 65		65 and upwards		TOTAL.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Respiratory System	..	..	6	..	1	2	1	7	14	19	18	24	26	39	40	23	25	13	21	8	7	1	159	136
Central Nervous System	4	3	4	5	4	3	..	2	..	3	1	1	..	..	1	1	1	..	..	..	..	..	15	18
Intestines and Peritoneum	1	..	3	2	1	2	..	2	..	1	..	..	..	1	..	..	..	..	..	..	..	..	5	8
Vertebral Column	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
Joints	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	2	..
Other Organs	..	..	..	..	..	..	..	..	..	..	..	..	1	2	..	..	..	..	..	..	..	..	1	2
Disseminated	1	..	3	1	1	2	..	2	..	2	2	..	5	..	1	..	1	3	..	..	..	1	14	11
Totals	6	3	16	8	7	9	1	13	15	25	22	25	32	42	42	24	28	16	21	8	7	2	197	175

83 per cent. of the "lung" cases were known to the dispensary staff, 196 having visited the dispensary and an additional 50 having been attended in their homes by the visiting nurses.

Only 30 per cent. of the "non-pulmonary" were attended at or from the dispensary. The proportion is much too low; the main reason is that 31·2 per cent. of the non-pulmonary cases were not notified before death (see later).

Of 295 deaths from pulmonary tuberculosis the diagnosis was verified bacteriologically in 208 instances, *i.e.*, 70 per cent.

9 other dispensary patients who were known to be suffering from pulmonary tuberculosis and in whose sputum tubercle bacilli had been found, died during the year, the causes of death being registered as pneumonia, 1; general tuberculosis, 1; acute miliary tuberculosis, 2; tuberculosis of meninges, 1; bronchitis, 1; nephritis, 1; cardiac disease, 2.

Duration of Illness.—Wherever possible, in pulmonary cases, enquiry was made as to the length of time the deceased had been ill, and the average duration of illness was found to be 46 months. As in previous years, important differences were discovered when age and sex were considered, the figures being 55 months for adult males, 40 months for adult females, and 13 months for those below 15 years of age (both sexes).

The period between notification and death was, as one would expect, longer in the adult males than in the adult females and children, but averaged 20·9 months for all cases.

As the duration of illness for all cases was 46 months, each patient who died during the year must, on the average, have been ill over 25 months before notification.

41·3 per cent. of the patients had either not been notified prior to death (7·1 per cent.), or died within 3 months of notification (34·2 per cent.).

Further details and comparative figures for previous years are submitted in the following table :—

Return of Deaths from Pulmonary Tuberculosis Occurring in :—

	Deaths which occurred in these years.						
	Average for 1913—17.	Average for 1918—22.	Average for 1923—27.	1928.			
				M.	F.	C.	Total.
Persons not notified	43	51	33	12	7	2	21
„ notified under 1 mth.	35	47	50	21	16	6	43
„ between 1 and 3 „	94	48	44	27	26	5	58
„ between 3 and 6 „	53	30	38	13	17	..	30
Total under 6 months	226	183	166	73	66	13	152
Persons notified between							
6 and 12 months	47	46	40	12	13	3	28
„ 12 and 18 „ ..	28	21	25	11	12	..	23
„ 18 and 24 „ ..	15	15	17	14	8	1	23
„ 2 and 3 years ...	20	18	22	8	9	..	17
„ over 3 years ...	21	47	53	33	19	..	52
Total	357	331	324	151	127	17	295

The figures for non-pulmonary forms of tuberculosis were even worse, for in 24 instances out of the 77 deaths, the disease had not been notified prior to death.

The records show that 15 of the 21 fatal unnotified cases of pulmonary tuberculosis, and 15 of the 24 fatal unnotified cases of non-pulmonary tuberculosis, died in hospitals ; included in the 15 " other forms " were 8 cases of tuberculous meningitis.

Occupation.—The nature of the work done and the conditions under which it is carried on have an important bearing on the incidence of disease, and probably account for the excess of adult male over adult female deaths from pulmonary tuberculosis.

126 " insured persons " (96 males and 30 females) are included in the 295 deaths.

Family History.—In 89 instances amongst the 261 cases of pulmonary tuberculosis known to the Dispensary who died during the year, *i.e.*, in 34 per cent., there was a history that some near relation was suffering from, or had died of pulmonary tuberculosis. The figures were 29 per cent. for men, and 39 per cent. for women.

House Accommodation.—The home conditions of the working classes are intimately associated with occupation and family history as predisposing to tuberculosis. The numbers of rooms in the dwellings occupied by the above 261 persons were as follows :—

Rooms in Dwelling.	1	2	3	4	More than 4	Common Lodging Houses.	Total.
Deaths	34	78	74	48	25	2	261

As regards the type of house occupied 140 were flats, 85 tenements, 34 self-contained, and 2 were common lodging houses.

Treatment in Institutions.—It is noteworthy that of the 207 patients suffering from pulmonary tuberculosis who attended the Dispensary and died in 1928 180, or 87 per cent., had received institutional treatment on one or more occasions. This is a high percentage, and shows what a large proportion of the cases visiting the Dispensary avail themselves of the accommodation provided.

Ward Distribution.—As in previous years a table is presented to show the ward distribution of tuberculosis during 1928. The estimated population of each ward is given, together with the number of notifications and deaths, and the rates per thousand living.

Of course the figures for one year are relatively small, and the rates may show great fluctuation from year to year, but when an average is taken over a period it is apparent at once that the death rate and notified incidence are both much higher in the poorer and more congested wards of the City.

Considerations of space prevent the publication of all the figures, but while the tuberculosis death-rate for the City in 1928 was 1·32, the average for the ten years 1919-28 for All Saints' Ward was 2·10, and for St. John's 1·91, whereas the corresponding figures for St. Thomas' and Jesmond Wards were 0·84 and 0·74 respectively. When one ward shows, over a period of years, a death rate from tuberculosis almost three times as great as that of another ward of the same city, it is obvious that there is great scope for preventive measures in tackling tuberculosis, and that further careful consideration of the problem is warranted.

The following table shows the number of positive cases living in one, two, three, four, and more than four roomed houses, and also the total number of persons living under these conditions. It will be seen that the largest number of cases occur in two and three roomed houses. This point, in conjunction with the ward distribution of the disease, emphasises the necessity of improving the homes of the people in order to stamp out tuberculosis.

Housing Conditions of Sputum Positive Cases.

Holding.	Number of Cases.	Number of Persons.	Average number of persons to one Room.
1 Room	59	139	2·35
2 Rooms	157	695	2·21
3 Rooms	153	679	1·47
4 Rooms	170	855	1·26
More than 4 Rooms	86	449	1·04
Not known	1	..	..
TOTAL	626	2,817	1·45

In 20 instances there were 2 cases in one house. In 1 instance there were 3 cases in one house.

WARD DISTRIBUTION OF TUBERCULOSIS, 1928.

WARD.	Population 1928.	NOTIFICATIONS.						DEATHS.						New Patients Dispensary Register.
		Pulmonary	Attack rate per 1,000 of population.	Non-Pulmonary	Attack rate per 1,000 of population.	TOTAL.	Attack rate per 1,000 of population.	Pulmonary	Death rate per 1,000 of population.	Non-Pulmonary	Death rate per 1,000 of population.	TOTAL.	Death rate per 1,000 of population.	
St. Nicholas'	2,702	2	0·74	5	1·85	7	2·59	2	0·74	1	0·37	3	1·11	7
St. Thomas'	13,654	15	1·10	8	0·58	23	1·68	11	0·80	5	0·37	16	1·17	15
St. John's	15,082	29	1·92	18	1·19	47	3·11	24	1·59	6	0·40	30	1·99	65
Stephenson	18,414	49	2·66	20	1·08	69	3·74	21	1·14	4	0·22	25	1·36	69
Armstrong	15,349	51	3·32	13	0·85	64	4·17	15	0·97	2	0·13	17	1·10	81
Elswick	12,531	18	1·44	7	0·56	25	2·00	8	0·64	3	0·24	11	0·88	30
Westgate	15,002	21	1·40	9	0·60	30	2·00	15	1·00	4	0·26	19	1·26	42
Arthur's Hill	11,252	5	0·44	5	0·44	10	0·88	5	0·44	2	0·18	7	0·62	8
Benwell	18,225	34	1·87	28	1·53	62	3·40	19	1·04	6	0·33	25	1·37	94
Fenham	16,612	25	1·50	7	0·42	32	1·92	9	0·54	..	..	9	0·54	48
All Saints'	17,384	54	3·11	31	1·78	85	4·89	24	1·38	6	0·34	30	1·72	76
St. Andrew's	11,631	16	1·38	14	1·20	30	2·58	8	0·68	5	0·43	13	1·11	29
Jesmond	10,991	12	1·09	6	0·54	18	1·63	6	0·54	3	0·27	9	0·81	10
Dene	15,871	19	1·20	8	0·50	27	1·70	13	0·82	3	0·19	16	1·01	28
Heaton	15,230	24	1·58	6	0·39	30	1·97	15	0·98	2	0·13	17	1·11	45
Byker	17,182	24	1·40	14	0·81	38	2·21	19	1·10	4	0·23	23	1·33	53
St. Lawrence	17,607	25	1·41	17	0·97	42	2·38	23	1·30	5	0·29	28	1·59	62
St. Anthony's	15,500	39	2·51	31	2·00	70	4·51	25	1·61	7	0·45	32	2·06	72
Walker	21,281	46	2·16	33	1·55	79	3·71	33	1·55	9	0·42	42	1·97	100
City	281,500	508	1·80	280	1·00	788	2·80	295	1·05	77	0·27	372	1·32	934

NOTE.—Deaths occurring in Public Institutions have been allocated in every case to the Wards in which they resided.

The Tuberculosis Dispensary.

The number of new patients entered on the register was 934. 465 of them were sent direct by general practitioners, 316 were referred to the dispensary by the visiting nurses, 44 by the School Medical Officers, and the remainder came from various sources, *e.g.*, Royal Victoria Infirmary 31, Citizens' Service Society, etc.

342 had been notified previously, and the balance, 592, of whom 145 were notified by the Dispensary Medical Staff, were suspects, or contacts of known cases. Of the last mentioned category 161 had lived with patients known to have bacilliferous sputum, and 77 were home contacts of persons certified to have died of pulmonary tuberculosis. The following table gives the details of the new cases, including contacts :—

New Cases Examined, including Contacts, during the Year 1928.
(Table I., Sect. A. & B., Memo. 37/T.).

Diagnosis.	Males.		Females.		Total.
	Over 15 yrs.	Under 15 yrs.	Over 15 yrs.	Under 15 yrs.	
Pulmonary Tuberculosis	139	4	80	7	230
Non-Pulmonary Tuberculosis .	18	26	11	16	71
*Diagnosis not completed after one month's observation ...	59	49	69	42	219
Non-Tuberculous	99	110	100	105	414
	315	189	260	170	934

* 49 of these were subsequently diagnosed as tuberculosis.

In respect of these new patients, after observation it was found that 62 per cent. were not suffering from active tuberculosis.

381 were "insured persons," and 470 were dependents of "insured persons," leaving only 83 of the uninsured classes.

2,215 patients visited the dispensary during the course of the year, and registered 7,209 attendances, an average of over 3 per patient.

The total number of complete physical examinations made was 2,087, including 817 males, out of 2,882 attendances; 596 females, out of 1,958 attendances; and 674 children out of 2,369 attendances; giving an average of approximately 1 every 3 visits for adults, and every 4 for children.

In 30·5 per cent. of the cases attending the Dispensary, tubercle bacilli were found in the sputum; 48·5 per cent. of the males, 37·3 per cent. of the females, and only 3 per cent. of those under 15 years of age. The details are tabulated below :—

Sputum Examination.	Number of Patients who attended the Dispensary during the Year 1928.			
	Total.	Males.	Females.	Under 15 years of age.
Bacilli found	675	416	238	21
Bacilli *not* found	1,540	441	399	700
TOTAL	2,215	857	637	721

Sputum Positive Cases.—The number of living sputum positive cases on the Dispensary Register on January 1st, 1928, was 626; during the year 131 of these died, and also 56 patients in whose sputa tubercle bacilli were found in the course of the year. In addition 48 cases were written off the Dispensary Register (11 cured, 37 left the district.)

235 cases were added to the register, making a total at the end of the year of 626, consisting of 410 males, 200 females and 16 children. 509 of these patients visited the Dispensary during the year. Of the 117 who

failed to attend 83 were reported by the nurses to be working or fit for work ; 17 were moderately well, while 14 had relapsed, and were mostly confined to bed ; in respect of the remaining 3 no information could be obtained. In 4 instances sanatorium treatment had been refused, but 100 patients had been treated at Barrasford Sanatorium, or the Sanatorium Pavilions, Walker Gate.

"Negative" Cases.—The records of the patients in respect of whom no tubercle bacilli have been found in the sputum are filed separately from those of the sputum positive cases, and 1,540 patients in this category attended during the year. This number included 815 males and 725 females. The preponderance of male cases was nothing like so pronounced as in the sputum positive group, and it is noteworthy that children were much more numerous, constituting 45 per cent. of the total as opposed to 3 per cent. of the bacteriologically verified cases. The majority of these "negative" cases were "suspects" or "contacts." 1,008 of these cases were removed from the Dispensary Register, and the details are given in the following table :—

CASES AND PATIENTS WRITTEN OFF THE DISPENSARY REGISTER DURING THE YEAR 1928.
(Table I., Sect. C., Memo. 37/T.)

DIAGNOSIS.	MALES.		FEMALES.		TOTAL.
	Over 15 yrs.	Under 15 yrs.	Over 15 yrs.	Under 15 yrs.	
Pulmonary Tuberculosis, Cured	1	..	3	..	4
Non-Pulm. Tuberculosis, Cured	..	..	3	5	8
Non-Tuberculous............	210	213	206	187	816
Left district, lost sight of, or will not attend Dispensary ..	57	41	48	34	180
	268	254	260	226	1,008

The numbers of patients in this category on the Dispensary Register at the end of the year are tabulated below :—

NUMBER OF CASES AND PATIENTS ON DISPENSARY REGISTER AT END OF YEAR 1928.

(Table I., Sect. D., Memo. 37/T.)

DIAGNOSIS.	MALES.		FEMALES.		TOTAL.
	Over 15 yrs.	Under 15 yrs.	Over 15 yrs.	Under 15 yrs.	
Pulmonary Tuberculosis	132	14	91	15	252
Non-Pulmonary Tuberculosis ..	65	111	80	77	333
Diagnosis Not Completed	50	59	54	67	230
	247	184	225	159	815

The two tables which follow are self-explanatory, and are required by the Ministry of Health under Memo. 37/T.

MEMO. 37/T. TABLE IV.

PULMONARY TUBERCULOSIS.

Annual Return showing in summary form the condition of all Patients whose case records were in possession of the Dispensary at the end of 1928, arranged according to the Years in which the Patients first came under Public Medical Treatment.

Condition at the time of the last Record made during the year to which the Return relates.	Previous to 1926.					1926.					1927.					1928.				
		Class T.B. plus.					Class T.B. plus.					Class T.B. plus.					Class T.B. plus.			
	Class T.B. minus.	Group 1.	Group 2.	Group 3.	Total (Class T.B. plus).	Class T.B. minus.	Group 1.	Group 2.	Group 3.	Total (Class T.B. plus).	Class T.B. minus.	Group 1.	Group 2.	Group 3.	Total (Class T.B. plus).	Class T.B. minus.	Group 1.	Group 2.	Group 3.	Total (Class T.B. plus).
Alive.																				
Discharged as Cured—																				
Adults—Male	31	..	..	..	50	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Female	14	..	..	..	26	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Children—Male	3	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Disease Arrested—																				
Adults—Male	20	11	10	1	22	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Female	10	2	7	..	9	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Children—Male	6	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Female	10	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Disease not Arrested—																				
Adults—Male	30	62	96	38	196	9	7	33	5	45	19	5	26	22	53	32	3	75	15	93
Female	17	20	48	17	85	5	2	15	8	25	25	1	11	8	20	15	3	32	12	47
Children—Male	14	..	8	2	10	3	1	..	..	1	8	..	2	1	3	1	..	3	..	3
Female	6	3	11	3	17	3	..	..	1	1	3	..	..	1	1	4	..	2	1	3
Lost sight of, or otherwise removed from Dispensary Register	1	..	..	..	86	12	..	10	3	13	12	..	8	3	11	..	..	..	..	..
Dead—Adults—Male	21	..	..	..	168	6	2	32	36	70	10	1	19	32	52	2	..	9	20	29
Female	11	..	..	..	102	6	2	26	43	71	3	..	17	23	40	..	..	8	15	23
Children— Male	..	..	..	..	..	..	..	..	1	1	..	..	..	1	1	..	..	..	..	..
Female	..	..	..	..	..	4	..	1	6	7	..	..	..	4	4	..	..	2	1	3
Totals	194	98	180	61	773	52	14	117	103	234	80	7	83	95	185	54	6	131	64	201

MEMO. 37/T. TABLE IV.

NON-PULMONARY TUBERCULOSIS.

Annual Return showing in summary form the condition of all Patients whose case records were in possession of the Dispensary at the end of 1928, arranged according to the Years in which the Patients first came under Public Medical Treatment.

	Condition at the time of the last Record made during the year to which the Return relates.	Previous to 1926.					1926.					1927.					1928.				
		Bones and Joints.	Abdominal.	Other Organs.	Peripheral Glands.	Total.	Bones and Joints.	Abdominal.	Other Organs.	Peripheral Glands.	Total.	Bones and Joints.	Abdominal.	Other Organs.	Peripheral Glands.	Total.	Bones and Joints.	Abdominal.	Other Organs.	Peripheral Glands.	Total.
Alive.	*Discharged as Cured*—																				
	Adults—Male	..	..	..	..	16	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Female	..	..	..	..	14	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Children—Male	..	..	..	..	31	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Disease Arrested—																				
	Adults—Male	1	1	..	2	4	..	1	..	1	2	..	..	..	2	2	..	..	..	..	..
	Female	2	..	..	2	4	..	..	..	3	3	1	..	..	1	2	..	..	..	..	..
	Children—Male	1	1	..	4	6	2	1	..	..	3	1	..	..	2	3	..	..	..	..	..
	Female	3	3	..	7	13	..	..	1	2	3	1	..	..	..	1	..	..	..	..	..
	Disease not Arrested—																				
	Adults—Male	4	..	5	2	11	5	1	..	1	7	4	1	..	4	9	6	2	3	6	17
	Female	7	1	4	5	17	2	1	..	2	5	2	2	1	5	10	2	4	2	7	15
	Children—Male	18	3	5	13	39	5	6	1	4	16	6	8	1	10	25	13	5	1	13	32
	Female	8	3	4	18	33	8	..	..	5	13	5	3	..	10	18	6	2	1	11	20
Transferred to Pulmonary		..	..	..	..	..	..	..	..	1	1	..	..	..	1	1	..	..	..	..	..
Lost sight of, or otherwise removed from Dispensary Register		..	..	..	..	..	9	3	2	13	27	3	..	..	12	15	1	..	..	1	2
Dead—	Adults—Male	..	..	..	..	10	1	..	1	..	2	..	1	2	..	3	..	1	..	..	1
	Female	..	..	..	..	7	..	1	..	..	1	..	1	1	..	2	..	1	1	..	2
	Children—Male	..	..	..	..	..	1	..	1	..	2	..	1	..	..	1	..	2	..	..	2
	Female	..	..	..	..	..	..	2	..	..	2	..	..	1	..	1	1	1	..	..	2
Totals		44	12	18	53	205	33	16	6	32	87	23	17	6	47	93	29	18	8	38	93

Relations with other Departments, etc.— The majority of new cases entered on the Dispensary Register were referred either directly by the local doctors (50 per cent.) or else by the visiting nurses after notification (33·8 per cent.). In many cases it was considered that more appropriate treatment or advice could be given elsewhere, and 370 letters of recommendation were given to other departments, hospitals, or charitable agencies. 133 cases were referred to the Voluntary Tuberculosis Care Council, 56 to the Citizens' Service Society, 27 to the United Services Fund, 40 to the Principal School Medical Officer, 18 to the Board of Guardians, 28 to the Royal Victoria Infirmary, 30 to the Housing Committee, and smaller numbers to various organisations.

Every effort is made to verify each notified case by bacteriological means, and during the year 1,191 specimens of sputum were examined at the Dispensary. Of this number 289 were found to contain tubercle bacilli, while 902 gave negative results. In addition 710 samples of sputum were sent, for examination, to the College of Medicine by the medical practitioners of the City. Of these 114 proved positive, and 596 negative.

Work of the Nurses.—1,060 new patients were seen, as against 1,048 in 1927, and 9,978 subsequent visits were made, giving a grand total of 11,038 for the year. The number of patients on the nurses' lists on December 31st, 1928, was 1,532, comprising 652 males, 449 females, and 431 children.

In 593 cases tubercle bacilli had been found in the sputum, and special attention has always been paid to these infective cases. They are visited at least once monthly, and their contacts are kept under the closest possible supervision.

During the year, the names of 1,251 patients were removed from the nurses' lists ; this total includes 303 deaths (192 sputum positive and 111 negative). Visits to 1,179 patients were discontinued on the instruction of the Tuberculosis Medical Officer ; of these only 39 were sputum positive cases, 24 of whom had left the district, while 1,140 were negatives. In the vast majority of the negative cases the names were removed because there was no evidence of active tuberculosis.

The Work of the Sanitary Inspector.—This officer disinfects houses after deaths or changes of address of persons suffering from pulmonary tuberculosis, arranges for the removal and disinfection of patients' clothing and bedding, and reports on any insanitary conditions existing in the homes of dispensary patients, such as overcrowding, insufficient ventilation, or defective sanitary arrangements.

The details of his work were as follows :—

Houses visited		726
Houses disinfected (total)		629
For patients going to Sanatoria	107	
For patients changing their address	77	
For patients going to Hospital	289	
After death	156	
Rooms disinfected in above houses		698
Total number of visits		1325

The types of houses disinfected were as follows :— one roomed, 48 ; two-roomed, 177 ; three-roomed, 154 ; four-roomed, 155 ; more than four rooms, 95.

Houses found to have sanitary defects (including overcrowding) and referred to the Senior Sanitary Inspector	117

INSTITUTIONAL TREATMENT.

55 beds were provided at Barrasford Sanatorium for early or moderately advanced cases of pulmonary tuberculosis, but in September 67 beds were occupied by Newcastle patients ; 92 beds were available for more advanced or emergency cases at the Sanatorium Pavilions at the City Hospital, Walker Gate, while at Stannington Sanatorium (a private institution) 30 beds were maintained for the treatment of tuberculous children.

Barrasford Sanatorium.—The following particulars refer only to Newcastle patients. The report of the Medical Superintendent of Barrasford Sanatorium will be found under a separate heading, and contains the complete statistics for that Institution.

127 patients (89 men and 38 women) were admitted in the course of the year, composed of 12 "suspects" sent for observation purposes, 11 suffering from pleurisy with effusion and 2 from tuberculosis of the cervical glands, while of the remainder 10 were classified at the Dispensary as being in Stage I., 78 in Stage II., and 14 in Stage III. of pulmonary tuberculosis.

Details of the admissions and discharges are given in the following table. The total number of days, and average length of stay is given in the table on page 182 :—

PATIENTS WHO RECEIVED TREATMENT IN BARRASFORD SANATORIUM DURING THE YEAR 1928.

(Table II. B., Memo. 37/T.)

	Sex.	In Barrasford Sanat'm on 1st January, 1928.	Admitted during the Year.	Discharged during the Year.	In Barrasford Sanat'm on 31st December, 1928.
Patients	M.	29	83	79	33
Do.	F.	9	32	19	22
Observation Cases	M.	..	6	6	..
Do.	F.	..	6	6	..
TOTAL		38	127	110	55

2 Patients died in the Sanatorium.

Of the 12 patients who had been under observation, 3 were found to be suffering from tuberculosis.

The results of treatment in the institution were satisfactory, and the condition of the patients on discharge was as follows :—

RESULTS.	Males.	Females.	TOTAL.
Fit to Work	43	12	55
Improved	29	5	34
Without Improvement	11	8	19
Died	2	..	2
TOTAL	85	25	110

Discharged patients are visited at frequent intervals by the Dispensary staff and are encouraged to report periodically so that they can be examined and records kept.

In the next table a summary is given of the condition on December 31st, 1928, of all the patients treated at the Corporation expense since 1908. It will be noticed that most of the earlier cases are returned as dead or untraceable :—

PATIENTS WHO RECEIVED TREATMENT IN BARRASFORD SANATORIUM, AND THE RESULTS.

YEAR.	Number of Patients discharged from Barrasford Sanatorium.	MALES.	FEMALES.	Condition at end of Year 1928.					Total Number of days in the Sanatorium.	Average number of days in the Sanatorium.
				Well, working or fit to work.	Improved or moderately well.	Relapsed.	Dead.	Lost sight of, or left the district.		
1909	55	34	21	2	2	..	39	12	6,260	114
1910	63	40	23	4	4	..	39	16	6,471	101
1911	72	46	26	8	3	..	49	12	6,868	97
1912	67	47	20	5	2	..	40	20	5,396	81
1913	85	58	27	8	2	..	48	27	9,567	112
1914	78	59	19	14	2	..	43	19	9,723	124
1915	74	54	20	9	2	1	40	22	10,803	146
1916	64	45	19	7	1	..	41	15	10,005	156
1917	68	45	23	14	..	1	36	17	10,603	156
1918	89	81	8	20	1	1	49	18	11,926	134
1919	107	85	22	23	5	1	62	16	14,207	133
1920	131	105	26	37	4	1	63	26	17,127	129
1921	112	88	24	24	4	1	68	15	13,544	122
1922	77	58	19	16	4	..	44	13	10,515	136
1923	100	76	24	28	5	2	52	13	14,062	140
1924	94	66	28	27	13	5	39	10	13,254	141
1925	109	70	39	55	4	4	39	7	15,716	144
1926	143	104	39	64	13	11	48	7	19,518	136
1927	114	79	35	48	23	14	24	5	15,147	133
1928	110	85	25	82	17	4	5	2	14,088	128
TOTAL ..	1,812	1,325	487	495	111	46	868	292	234,800	129
Received treatment in previous years ..	143	107	36	49	20	8	59	7	..	..
Nett Cases	1,669	1,218	451	446	91	38	809	285	234,800	140

Sputum Positive Cases.—The appearance of tubercle bacilli in the sputum indicates that there is active destruction of lung tissue, but it must be recognised that there is always a doubt about any case in which the diagnosis has not been verified bacteriologically. Accordingly the bacterial history of each patient admitted to Barrasford Sanatorium has been investigated as thoroughly as possible, and the results are tabulated below :—

BACTERIAL HISTORY OF
PATIENTS WHO RECEIVED TREATMENT IN BARRASFORD SANATORIUM.

YEAR.	Persons discharged from Barrasford Sanatorium.			Number who had Tubercle Bacilli found in the Sputum after discharge.	Persons deceased at the end of the year.				Cases who had Tubercle Bacilli in the Sputum and could not be traced at end of Year.
	TOTAL Nett Cases.	Number who had Tubercle Bacilli found in the Sputum.	Number who had ***not*** Tubercle Bacilli found in the Sputum.		TOTAL.	Tubercle Bacilli found in the Sputum before or during treatment.	Tubercle Bacilli found in the Sputum after discharge.	No record of Tubercle Bacilli ever found in Sputum.	
1909	55	35	20	2	39	31	2	6	2
1910	63	45	18	3	39	32	3	4	9
1911	67	45	22	6	45	37	4	4	6
1912	63	36	27	10	37	26	6	5	11
1913	81	52	29	3	47	38	3	6	10
1914	74	53	21	3	41	37	2	2	8
1915	73	51	22	3	39	34	3	2	6
1916	63	47	16	3	40	35	3	2	7
1917	64	42	22	6	33	26	5	2	8
1918	83	55	28	4	46	41	2	3	9
1919	102	82	20	5	59	56	2	1	12
1920	127	89	38	3	62	59	1	2	9
1921	106	84	22	5	63	57	3	3	11
1922	64	49	15	2	40	35	1	4	6
1923	95	77	18	1	49	47	1	1	7
1924	84	70	14	..	33	33	..	..	5
1925	89	71	18	2	31	28	1	2	5
1926	124	104	20	..	42	37	..	5	6
1927	98	71	27	..	20	20	..	..	4
1928	94	59	35	..	4	3	..	1	3
TOTAL	1,669	1,217	452	61	809	712	42	55	144

The very heavy mortality experienced by the bacteriologically verified cases shows how serious is the finding of tubercle bacilli in the sputa of patients of the industrial classes.

STANNINGTON SANATORIUM.

The 30 beds were kept fully occupied throughout the year, and 46 patients completed treatment.

The details appear below :—

Children who received Treatment in Stannington Sanatorium during year 1928.

	In Sanatorium on 1st Jan., 1928.	Admitted during the Year.	Persons who completed Treatment during the year.			In Sanatorium on 31st Dec. 1928.
			Number	Total Number of Days	Average length of stay in Days.	
Males	13	26	26	5,477	210	13
Females	17	20	20	4,969	248	17
Total	30	46	46	10,446	227	30

In nearly every case great benefit accrued to the patient, as is shown in the following return :—

	Males.	Females.	Total.
Disease quiescent	17	10	27
Improved	9	9	18
Died	..	1	1
Total	26	20	46

SANATORIUM PAVILIONS, WALKER GATE.

The 92 beds were generally kept fully occupied, and at times there were patients awaiting admission. 267 patients were admitted (167 males and 100 females).

Annual Return to the Ministry of Health, under Memo 37/T.

TABLE I.

Year.	On Dispensary Register 1st January.	Transferred from other areas and lost sight of cases returned.	Examinations for First Time during the Year. (*a*) New Cases in Roman Type. (*b*) Contacts in Italics.										Number of Persons attended during the year.	Removed from Dispensary Register during the Year.					On Dispensary Register at the end of the Year						Total Attendances during the Year.	Visits to Patients' Homes for Dispensary Purposes.		Number of Specimens of Sputa examined at Dispensary and College of Medicine.	Ex-Ray Examinations.		Number of Insured Persons on Dispensary Register on 31st December.	Number of Insured Persons under Domiciliary Treatment on December 31st.	G.P. 17 received during the Year.	G.P. 36 received during the Year
			Pulmonary.		Non-Pulmonary.		Doubtfully Tuberculous.		Non-Tuberculous.		Totals.			Cured.	Non-Tuberculous.	Transferred to other areas, etc.	Dead.	Total.	Diagnosis completed for Tuberculosis.		Under Observation.		Totals.			By			Films.	Screens.				
			Adults.	Children	Adults.	Children	Adults.	Children	Adults.	Children	Adults.	Children							Adults.	Children	Adults.	Children	Adults.	Children		T.M.O.	Nurses.							
1925..	2580	12	171	5	27	44	9	4	211	229	418	282	2627	..	627	20	280	927	1152	357	534	559	1686	916	8043	32	12305	1375	210	464	1013	Not known	3	1
,, ..	..	..	*69*	*3*	*5*	*14*	*4*	*3*	*79*	*60*	*157*	*80*	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1926..	2602	110	260	17	32	55	70	48	249	216	611	336	2510	148	1259	281	260	1948	862	181	292	446	1154	627	8508	66	11512	1805	174	548	679	40	13	..
,, ..	..	..	*8*	*1*	..	..	*7*	*10*	*18*	*26*	*33*	*37*	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1927..	1781	208	220	20	31	49	148	116	147	144	546	329	2521	16	933	188	228	1365	930	223	164	243	1094	466	7630	70	11485	1697	252	409	557	180	74	75
,, ..	..	..	*5*	..	..	..	*18*	*15*	*6*	*17*	*29*	*32*	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1928..	1560	224	216	8	28	41	115	78	189	187	548	314	2215	23	816	217	221	1277	978	233	104	126	1082	359	7209	61	11038	1901	247	324	691	177	58	137
,, ..	..	..	*3*	*3*	*1*	*1*	*13*	*13*	*10*	*28*	*27*	*45*	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

Details of the number of patients admitted and discharged are given in the accompanying table :—

Patients Who Received Treatment in the Sanatorium Pavilions, Walker Gate, during the Year 1928.

(Table II. B., Memo. 37/T.)

		Sex.	In Institution on 1st January 1928.	Admitted during the Year.	Discharged during the Year.	Died in Institution during the Year.	In Institution on 31st Dec., 1928.
Number of Patients.	Adults ..	M.	45	144	97	46	46
	Do.	F.	27	81	61	21	26
	Children .	M.	4	3	5	..	2
	Do.	F.	4	10	7	3	4
Observation Cases.	Adults ..	M.	2	19	16	1	4
	Do.	F.	..	5	5	..	..
	Children .	M.	1	1	2	..	..
	Do.	F.	2	4	5	1	..
Total ..	..	..	85	267	198	72	82

N.B.—18 patients were re-admitted and are counted as 36 admissions.
3 patients were re-admitted twice, and are counted as 9 admissions.

Of the 31 patients who had been under observation 8 were found to be suffering from tuberculosis. The total number of days of those who received treatment was 32,256, giving an average length of stay of 119 days.

Treatment has been on Sanatorium lines, modified to some extent in view of the type of patient ; the essentials are the same, however, namely, rest and good food under satisfactory hygienic conditions, with exercise graduated to the patient's tolerance.

Artificial Pneumothorax.—There were 14 initial inductions of artificial pneumothorax and 126 refills performed at Walker Gate Sanatorium during the year. Since the year 1922, 154 patients have received this form of treatment at Walker Gate Sanatorium, and 93 at Barrasford Sanatorium.

X-Ray Examinations.—During the year the following thoracic examinations were carried out, viz., 388 films and 353 screen examinations. In addition, many patients are screened as a routine, especially during artificial pneumothorax treatment, of which no special record has been kept.

72 patients died in the institution; the condition of the other patients on discharge is given in the table below:—

	Males.	Females.	Total.
Improved	98	57	155
Without Improvement	22	21	43
Died in Hospital	47	25	72
TOTAL	167	103	270

Many of those discharged "improved" were fit for light work, while 19 were transferred to Barrasford Sanatorium.

Other Institutions.—Numerous cases of surgical tuberculosis were treated in the general hospitals, *e.g.*, the Royal Victoria Infirmary and the Fleming Memorial Hospital. In addition, 186 patients admitted to the Poor Law Institution (Wingrove Hospital) were notified as suffering from tuberculosis; 110 of these (59 males and 51 females) being lung cases and 76 (48 males and 28 females) suffering from non-pulmonary tuberculosis.

Deaths in Institutions.—184 of the deaths from tuberculosis (143 "lungs" and 41 "other forms") occurred in institutions. 76 patients (71 "lungs" and 5 "other forms") died in the Sanatorium Pavilions, Walker Gate, and the City Hospital for Infectious Diseases. 80 patients (64 "lungs" and 16 "other forms") died in Wingrove Hospital, 17 patients (4 "lungs" and 13 "other forms") in the Royal Victoria Infirmary, 5 patients died from non-pulmonary tuberculosis in the Fleming Memorial Hospital, and 11 patients in other institutions.

The various activities of the Tuberculosis Section have been summarised, and are set out on page 187, together with the corresponding figures for previous years.

TUBERCULOSIS SECTION.

Summary of Work Done.

	Average for 5 years.			1928.
	1913-17	1918-22	1923-27.	
Notifications ... Total.	1013	786	828	788
Pulmonary	661	538	543	508
Non-Pulmonary	352	248	285	280
Notified by Disp. Med. Staff	174	184	151	145
Deaths (Corrected) Total.	536	469	419	372
Pulmonary	382	354	325	295
Non-Pulmonary	154	115	94	77
Attendances at Dispensary	6777	10588	8283	7209
New Patients	899	919	954	934
Barrasford Sanatorium				
Admitted	74	105	112	127
Discharged	74	103	112	110
Stannington Sanatorium.				
Admitted	58	44	43	46
Discharged	52	44	43	46
Sanatorium Pavilions, Walker Gate.				
Admitted	92	187	281	267
Discharged	62	134	207	198
Died	23	48	67	72
Bacteriological Exams.				
College of Med. . Total.	690	604	619	706
Sputum—Positive	177	138	110	114
Negative	513	466	509	592
Dispensary ... Total.	678	1546	1357	1191
Sputum—Positive	151	343	295	289
Negative	527	1203	1062	902
Urine Examinations	586	921	947	960
Evening Consultations.				
Attendances	1023	1378	829	724
New Patients	99	63	43	31
Home Visits by T.M.O.	..	..	..	61
Work of Nurses.				
New Patients	800	632	1035	1060
Subsequent Visits	5362	11295	11188	9978
Total Visits	6162	11927	12223	11038
Special Inspector's Visits	1560	1016	1331	1325
Houses Disinfected	533	513	706	629
Rooms Disinfected	853	578	806	698
Sanitary Defects — Houses	38	68	148	117

GEORGE HURRELL, M.D., D.P.H.,
Tuberculosis Medical Officer.

BARRASFORD SANATORIUM.

Report of the Medical Superintendent.

To the Medical Officer of Health.

Sir,

Herewith is submitted a report on the work at Barrasford Sanatorium during the year 1928.

Weather conditions at Barrasford were distinctly more favourable than in 1927. The results of treatment, however, were almost identical with those of the previous year, when the atmospheric conditions were so bad.

It is becoming more and more obvious, as has been pointed out so often in these reports, that stringent open air conditions in all weathers is not a desirable feature of the institutional treatment of pulmonary tuberculosis, and that fresh air, meaning by that, super-ventilation, is the least valuable of all the factors that go to make up sanatorium treatment. Whilst normal ventilation of rooms is maintained at Barrasford, the drastic exposure of patients to the weather, which used to be hailed as the essential principle, has been eliminated as far as possible. Rest is the principle of prime importance to the sufferer from tuberculosis—rest to the affected part, rest to the body as a whole, by the strict observance of resting periods, and rest to the mind by reassurance and relief from worry when possible. It would be all to the good if the term " the open air treatment of tuberculosis " could be abolished, being as it is misleading and dangerous to the public.

In every annual report written since the Corporation attained the Institution in 1921, it has been a pleasure to record some definite structural improvement to the Institution, and this occasion proves to be no exception. During the year the sanitary wing at the west end of the building has been extended, and there is now ample and more convenient bathing and lavatory accommodation for the 60 beds contained in that end of the Institution.

The condition of the housing of the nursing and domestic staffs remains unaltered, and as recorded in the last annual report, is one of overcrowding, discomfort and inconvenience. The nursing staff has not the favourable conditions which can be seen in practically any other institution in the country.

The progressive failure of the Institution's water supply was promptly dealt with by the Corporation in 1921, when a pipe line was run from the Newcastle and Gateshead Company's main, where it passes close to the Sanatorium on its way from the Cheviots to Newcastle, and it was thought that the water shortage was permanently overcome. It is the policy (and an essential one) of the Water Company to empty the main pipe for some miles in the vicinity of the Sanatorium each year for a period of about four weeks in each year, in order to clean it, so as to maintain its full bore. During this period the Sanatorium is deprived of the Company's water, and at first, with reasonable restrictions and management, the original private supply was made to suffice, but in recent years there has been such a falling off of the latter that despite great curtailments in the use of water, almost amounting to hardship, the supply has been insufficient, and has caused the greatest anxiety. The matter has been brought to the notice of the Sub-Committee, and at the moment an expert's opinion is being obtained.

The library has profited as in other years by regular gifts from the British Red Cross Society and Dr. Kerr, as well as by parcels from numerous other donors, to all of whom gratitude is due.

As in previous years, the X-ray set has been in constant service. A film of the chest is taken of every patient on admission, and in certain circumstances on discharge, *e.g.*, to show the changes occurring as the result of prolonged treatment, or the use of sanocrysin or lung collapse. The interpretation of all films is written up and filed. Further, a large number of radioscopic examinations were made in connection with treatment by lung collapse. The routine X-ray photography of all cases is of much value not only immediately, but also remotely in the patients who return subsequently for observation or further treatment. The disease in the lungs can only be regarded as arrested when no change can be observed in X-ray films separated in time by some months. During the year 220 films were completed.

Admissions.—The number of incoming cases (202) was 14 less than in 1927, though there were 10 more Newcastle cases admitted than in the year previous. The fall in admissions as compared with 1927 is accounted for mainly by the vacating of the beds for females which the Durham County Council had taken temporarily. Of the 202 admitted cases, 30 had been in the Sanatorium previously, and were disposed as follows :—

Newcastle Corporation............	20 out of 127
Gateshead Corporation	10 out of 42

ADMISSIONS TO THE SANATORIUM DURING 1928.

Authority.	Male.	Female.	Total.
*Newcastle Corporation	89	38	127
*Gateshead Corporation	42	..	42
Tynemouth Corporation	2	3	5
West Hartlepool Corporation	8	8	16
Tynemouth Union	2	..	2
Private Cases	2	1	3
Durham County Council	..	5	5
Post Office Sanatorium Society	1	..	1
Vickers Armstrong's Employees' Medical Fund	1	..	1
	147	55	202
During 1927	151	65	216
During 1926	166	62	228
During 1925	182	59	241
During 1924	150	51	201
During 1923	155	52	207
During 1922	212	55	267
During 1921	220	60	280

* Includes 1 case admitted twice during the year and counted as 2 admissions.

Discharges.—The discharges numbered 187, being 35 fewer than in 1927. Included in these figures are 2 cases who died in the Institution during the year—one from heart failure in the course of bilateral pleural tuberculosis; the other from an overwhelming pulmonary hæmorrhage. 5 cases were discharged early, as they appeared to be too ill to give any reasonable hope of their health improving. In the main, patients accepted readily the advice given them regarding the length of their residential treatment.

DISCHARGES FROM THE SANATORIUM DURING 1928.

Authority.	Male.	Female.	Total.
Newcastle Corporation	85	25	110
Gateshead Corporation	42	..	42
Tynemouth Corporation	2	3	5
West Hartlepool Corporation	8	6	14
Durham County Council	..	9	9
Tynemouth Union	1	1	2
Private Cases	3	1	4
Post Office Sanatorium Society	..	..	..
Vickers Armstrong's Employees' Medical Fund	1	..	1
	142	45	187
During 1927	151	71	222
During 1926	172	61	233
During 1925	171	57	228
During 1924	152	46	198
During 1923	167	52	219
During 1922	229	65	294
During 1921	212	62	174

SUMMARY OF MOVEMENTS OF PATIENTS DURING 1928.

Authority.	In residence night of Dec. 31st, 1927.	Admitted during 1928.	Dis-charged during 1928.	In residence night of Dec. 31st, 1928.
Newcastle Corporation	38	127	110	55
Gateshead Corporation	10	42	42	10
Tynemouth Corporation	2	5	5	2
West Hartlepool Corporation	3	16	14	5
Durham County Council	4	5	9	..
Tynemouth Union	1	2	2	1
Private Cases	1	3	4	..
Post Office Sanatorium Society	..	1	..	1
Vickers Armstrong's Employees' Medical Fund	..	1	1	..
	59	202	187	74

The particulars of patients and the results of their treatment, which are set out later, are based on the discharged, *i.e.*, completed cases. Of the 187 discharged cases, 23 exhibited no definite signs or symptoms of clinical tuberculosis, and were discharged as not suffering from that disease, and are excluded from the particulars and results of treatment which follow later. Of the remaining 164 tuberculous cases, 2 were non-pulmonary, leaving 162 cases of definite pulmonary or pleural tuberculosis, some details of which are now set out.

SOCIAL STATUS.

	Male.	Female.	Total.
Single	70	24	94
Married	54	11	65
Widowers	2	..	2
Widows	..	1	1
TOTAL	126	36	162

AGE.

Years.	Male.	Female.	Total.
16—20	19	7	26
20—25	27	15	42
25—30	24	3	27
30—35	18	4	22
35—40	12	6	18
40—45	16	..	16
45—50	6	1	7
50—55	4	..	4
	126	36	162

OCCUPATIONS OF 126 MALE PATIENTS :—

Labourers	17
Engineering and Metal Workers	16
Clerks	14
Miners	6
Machinists	4
Drillers	4
Railway Workers (Outside)	3
Railway Workers (Inside)	1
Commercial Travellers	3

Electricians and Wiremen	3
Cartmen	3
Draughtsmen	3
Moulders	2
Bricklayers	2
Analytical Chemists	2
Glass Workers	2
Salesmen	2
Brewery Workers	2
Motor Drivers	2

and one each of the following :—Baker, plumber, navigator, joiner, stoker, shunter, ex-Naval rating, errand boy, flour miller, store-keeper, schoolmaster, armature winder, ambulance attendant, warehouseman, dental mechanic, assistant wharfman, rivetter, tram driver, stage hand, forge hammer driver, insurance clerk, gas fitter, law student, waiter, slinger in factory, upholsterer, marker, poultry farmer, butcher, diver, engineman, stableman, cabinet maker, coal-teemer, and one had no occupation. Total—126.

OCCUPATIONS OF 36 FEMALE PATIENTS :—

Housewives	11
Domestic Workers at Home	6
Shop Assistants	4
Domestic Servants	2
Clerks	2
Nurses	2
Mill Hands	2

and one each of the following :—Glass worker, laundry packer, laundress, packer, warehouse assistant, children's nurse, salt mixer. Total—36.

The average duration of treatment of all cases was 120·6 days. The average period of residence of the tuberculous cases only was 132·85 days—or 19 weeks—and that for the 104 Newcastle tuberculous cases alone was 129·6 days. The longest stay made by any completed case was 686 days, and the shortest 6 days. The average number of beds occupied daily during the year was 71·87 ; the average for males being 52·24, and that for females 19·63. The total number of patient days was 26,236, divided into male 19,070, and female 7,166.

Below is given an analysis of the average number of beds occupied, and the number of patient days :—

Authority.	Average Beds occupied daily.	Patient Days.
Newcastle Corporation	51·185	18,733
Gateshead Corporation	10·196	3,732
Tynemouth Corporation	1·969	720
West Hartlepool Corporation	5·532	2,025
Durham County Council	1·325	485
Tynemouth Union	·396	145
Private Cases	·795	291
Post Office Sanatorium Society	·128	47
Vickers Armstrong's Employees' Medical Fund	·158	58

Diagnosis.—The diagnosis of pulmonary tuberculosis was confirmed bacteriologically either before admission or during residence in 125 cases ; 98 males and 27 females. 32 patients—26 males and 6 females—were apparently without tubercle bacilli in the sputum, and 2 males and 6 females said they had no expectoration, making 40 cases of tuberculosis in whose sputa tubercle bacilli had never been demonstrated. The clinical examination findings in all sputum negative cases can be divided as follows :—

Not suffering from clinical tuberculosis	23
Non-pulmonary tuberculosis	2
Definite pleural tuberculosis without evidence of lung tuberculosis	24
Definite physical signs and X-ray evidence of lung tuberculosis without demonstrable bacilli	14

The radiographs of the 14 cases included in the last paragraph showed appearances suggesting the presence of definite fibrosis of deposits in situations usually chosen by tubercle bacilli in 13 cases, and in the other there was evidence of a small localised fresh lesion which had apparently caused a small pulmonary hæmorrhage. It is possible, therefore, in these 14 cases, to reconcile the presence of pulmonary tuberculosis with the absence of tubercle bacilli from the sputum.

The 2 cases of non-pulmonary tuberculosis were as follows :—

Glandular tuberculosis	1
Abdominal tuberculosis	1

772 sputum examinations were made at the Sanatorium during the year ; of these 208 were positive as regards the presence of tubercle bacilli, and 564 were negative. As in the past, great care has been given to the establishment of the diagnosis. All cases without bacilli in the sputum have been regarded as doubtful until definite diagnostic criteria have been fulfilled. A diagnosis in a doubtful case is only established after a residence of 3 weeks, during which time 3 or more examinations of the chest are made, with careful rectal temperature recording, numerous sputum examinations, and the study of X-ray films of the lung fields, together with examinations of other systems and special investigation when necessary.

861 complete examinations of the chest were made during the year, together with routine examinations of the larynx and urine on admission of the patient, and subsequently when necessary.

During the year, 23 cases were discharged as not suffering from pulmonary tuberculosis, and the diagnoses in these cases were as follows :—

Pulmonary Fibrosis without evidence of Tuberculosis	11
Chronic Bronchitis	3
Chronic Bronchitis with Emphysema	3
No pathological condition detected	3
Pulmonary Abscess	1
Malignant Disease of the Lung	1
Pregnancy	1

These 23 non-tuberculous cases were included in 27 patients sent for observation for the purpose of making a diagnosis. Four were found to be suffering from pulmonary tuberculosis.

The period of observation for the purpose of diagnosis is set out below :—

	Under 1 week.		1 to 2 weeks.		2 to 4 weeks.		More than 4 weeks.	
	M.	F.	M.	F.	M.	F.	M.	F.
Tuberculous	..	..	3	1	..	..	..	..
Non-Tuberculous	..	..	..	1	7	5	9	1
Doubtful	..	..	..	..	..	..	..	..

Treatment.—Routine treatment at Barrasford has been continued on the same lines as have seemed to serve best in the past in the control of the symptoms of active pulmonary tuberculosis. The first essential has been an investigation into the range of the bodily temperature which, if found to be normal, has allowed the patient quickly to proceed to graduated exercise. On the other hand, should the temperature prove to be raised, rest in bed has been persevered in as long as was necessary. It remains only too clear that a raised temperature is of the greatest significance, and that no progress towards recovery is made in its presence unless the patient is at complete rest. On the other hand, the control of a raised temperature is frequently seen to occur promptly with rest, and obvious improvement in health to date from that moment. Thereafter, the patient commences graduated exercise, and joins in the routine, which includes several periods of complete rest during the day, and a plain, wholesome, but varied diet.

68 of the 164 definite cases of tuberculosis were found to have normal temperatures during the whole course of their residence. 96 patients were feverish at some or other time of their treatment in the Sanatorium, spending amongst them 4,001 days in bed.

Afebrile throughout Treatment.	Febrile on Admission, Afebrile on Discharge.	Febrile Intermittently	Febrile throughout Treatment.	Afebrile on Admission, Febrile on Discharge.
68	51	20	22	3

Artificial Pneumothorax Treatment continues to be the most successful and widely used of all the special forms of treatment. It was first employed at Barrasford in 1913, and has been used extensively ever since. It so happens that during 1928 fewer cases were found to be suitable for treatment by lung collapse than for a number of years previously, the number being down to a greater degree than is accounted for by the diminished number of patients passing through the Institution in the year in question. Amongst the 162 cases of pulmonary tuberculosis discharged, 24 were judged to be suitable for the induction of an artificial pneumothorax, but in 5 the lung could not be collapsed, owing to changes in the chest in the course of the disease, and one case declined to have the treatment. Of the 18 cases in whom lung collapse was employed, 8 were left sided cases, 8 were right, and the remaining 2 were bi-lateral, one having both lungs partially collapsed simultaneously, the other having first one lung and then the other put at rest. In 6 of these cases, including the 2 where bi-lateral lung compression was employed, the procedure failed to control the symptoms, and it was abandoned. The average number of inductions in these cases was 5, and no effusions occurred. In the remaining 12 cases the artificial pneumothorax was effective and troublesome symptoms relieved—cough and sputum were abolished or reduced to a minimum, and temperature reduced to a normal range. 4 of these cases developed an effusion, and 2 developed a spontaneous pneumothorax on the side of the artificially induced, requiring 3 withdrawals. The successful cases averaged 10 inductions each during residence. The total number of inductions performed during the year was 258.

Treatment with Sanocrysin.—Another special form of treatment which is being more and more used is a drug treatment. It consists of the injection into a vein of a salt of gold known as sanocrysin. It is an expensive drug, its use involves a considerable technique, and the cases under treatment require skilled supervision. It is likely to be of most use in cases with recent disease in the lungs. In old standing cases it is said to be not so efficacious. Of those cases treated with sanocrysin during 1928, only 10 were discharged during the year, and can therefore be included in the report. 4 cases who had extensive active disease are known to have died, 2 of them developing abdominal tuberculosis as a terminal condition, where there was no reason to suspect its presence before the treatment was commenced; whilst one had persistent albuminuria after a total of 1·2 grain. In one other female case it was not possible to continue treatment owing to the smallness and inaccessibility of veins, and intra-muscular injections proving to be very painful indeed. The remaining 5 patients all made excellent progress after the exhibition of sanocrysin, whereas previously symptoms had defied routine treatment, and in 3 cases artificial pneumothorax.

Ultra-Violet Radiation.—Treatment by ultra-violet rays was not employed to the same degree as in 1927. In all, 14 cases were treated, 12 of pleural tuberculosis, with definite physical signs and X-ray evidence of this condition, but with nothing to suggest the presence of a lung lesion, and 2 of non-pulmonary tuberculosis, one being abdominal and one glands of neck. These cases altogether received 352 exposures during the year. So far as Barrasford is concerned, experience fails to show that the cases of non-pulmonary tuberculosis treated with routine treatment plus ultra-violet radiation derive any advantage that is not obtained by routine alone, and as it definitely may do harm in cases of lung tubercle, its use has now been finally abandoned in this Sanatorium for lung or pleural cases.

Dental Treatment.—The dental state of many patients continues to be appalling. A great deal of ill-health and pain is attributable to decayed teeth and septic gums. A large number of tooth extractions are performed in cases of toothache or neuralgia, but the radical treatment of multiple decayed teeth cannot be attempted, and the majority of patients with this condition continue on their return home to suffer from oral sepsis and inability to masticate, which is so very important in such a disease as that for which they are admitted. Before the next report is published, it is proposed to ask the Committee to sanction the establishment of a periodic dental clinic at the Sanatorium.

Results of Treatment.—The immediate results of treatment were, as previously, excellent. 122 of the pulmonary cases were very much improved in general health, and the 2 non-pulmonary cases also justified their treatment. Definite improvement in the pulmonary condition was seen in 16 cases of artificial pneumothorax, and in 4 of the sanocrysin cases, but in the overwhelming proportion the great improvement in general health was not accompanied by a corresponding change in the physical signs suggesting healing. Healing, under the most favourable conditions, takes a considerable time, and is never attained in the comparatively short time that patients are able to stay in the sanatorium. Great care is necessary on the patient's return home, and the way of the post-sanatorium patient is hedged with difficulties. Nevertheless, the tuberculosis problem is gradually resolving, and the type of tuberculous case is gradually improving. Certainly, at this sanatorium, there are fewer pulmonary hæmorrhages occurring during treatment, and fewer histories of this dangerous symptom before admission are elicited than was so ten or more years ago. Moreover, there is an undoubted increase in the number of cases coming to the sanatorium for the first time who show, on admission, clear evidence of fibrosis, that is healing, indicating considerable natural resistance to the disease. The opinion is strongly held at Barrasford that the type of disease present in the area of the country which the sanatorium serves is less acute than used to be the case. In other words, the cumulative general effects of the anti-tuberculosis schemes is bringing about in the people a change for the better in the powers of resistance to tuberculosis.

The weight records of the 164 definite cases of tuberculosis of the lungs or pleuræ, with those of the 2 non-pulmonary and 23 non-tuberculous cases, are as follows :—

		Gained up to 7 lbs.	Gained 7 to 14 lbs.	Gained over 14 lbs.	Remained stationary.	Lost up to 7 lbs.	Lost over 7 lbs.	Not weighed on discharge.	Total.
164 definite cases.	Gained weight..	47	73	27	..	..	..	..	147
	Lost weight....	..	..	..	..	8	5	..	13
	Stationary	..	..	..	2	..	..	..	2
	Not weighed on discharge....	..	..	..	..	..	..	2	2
	Total..........	47	73	27	2	8	5	2	164
2 cases of non-pulmonary tuberculosis.	Gained weight..	1	1	..	..	..	..	..	2
	Total..........	1	1	..	..	..	..	..	2
23 non tuberculous cases.	Gained weight..	11	7	..	..	..	..	..	18
	Lost weight ..	..	..	..	..	4	..	..	4
	Stationary	..	..	..	1	..	..	..	1
	Total..........	11	7	..	1	4	..	..	23

Under the classification of cases introduced by the Ministry of Health, patients suffering from pulmonary tuberculosis are divided into :—

Class T.B. Minus, or those cases in which tubercle bacilli have never been demonstrated in the sputum, and

Class T.B. Plus, viz., cases in which tubercle bacilli have at any time been found.

The latter class is further divided into 3 groups :—

Group 1.—Cases with slight constitutional disturbance, if any, and in which the obvious physical signs are of very limited extent.

Group 3.—Cases with profound systemic disturbance or constitutional deterioration, with marked impairment of function and with little or no prospect of recovery.

Group 2.—All cases which cannot be placed in Groups 1 or 3.

To indicate the results of treatment, the following terms are laid down :—

" Quiescent."—Cases which have no symptoms of tuberculosis and no signs of tuberculous disease, except such as are compatible with a completely healed lesion, and in which the sputum, if present, is free from tubercle bacilli.

" Arrested."—In pulmonary cases the term should be applied only to cases which have been " quiescent " for a period of at least 2 years.

" Improved."—Cases short of " quiescent," in which the general health is fair and the symptoms of tuberculosis have materially diminished.

" No Material Improvement."—All other patients who are alive.

When considered in these terms, the results of treatment of the 162 cases of lung or pleural tuberculosis can be set out as follows :—

T.B. Minus.

	M.	F.	Total.
Quiescent	15	4	19
Improved..................	11	1	12
No material improvement ..	1	4	5
Died in the Institution	1	..	1

T.B. Plus.

		M.	F.	Total.
G.1	Quiescent	2	..	2
	Improved..................	1	..	1
	No material improvement ..	..	..	..

		M.	F.	Total.
G.2	Quiescent	..	..	..
	Improved	68	17	85
	No material improvement	10	7	17
G.3	Quiescent	..	..	..
	Improved	3	..	3
	No material improvement	13	3	16
	Died in the Institution	1	..	1

Non-Pulmonary Tuberculosis.

		M.	F.
Abdominal	Improved	..	1
Peripheral Glands	Improved	..	1

The comparatively large number of T.B. minus cases which improved to the degree of quiescence is made up of the cases of pleural tuberculosis which had no evidence of disease in the lungs themselves, and on discharge had no symptoms, no sputum, and no signs of anything but pleural thickening. It will be seen that a large proportion of the cases sent for treatment had extensive disease on admission, and that the results of treatment are best in the sputum negative class, and the two higher groups of the sputum positive cases.

I am greatly indebted to the Matron (Miss F. Baguley, A.R.R.C.) for her continued co-operation, and thanks are due to the whole of the staff for their assistance.

Yours faithfully,

Cecil G. R. Goodwin,

Medical Superintendent.

Barrasford Sanatorium,
Northumberland,
28th May, 1929.

REPORTS OF THE VETERINARY OFFICER
AND INSPECTOR OF PROVISIONS,
AND OF THE INSPECTOR UNDER THE FOOD AND
DRUGS ACTS (SENIOR SANITARY INSPECTOR).

V.—FOOD.

BOVINE TUBERCULOSIS.
INSPECTION OF MEAT AND PROVISIONS.
INSPECTION OF FOOD AND DRUGS.

BOVINE TUBERCULOSIS, AND THE INSPECTION OF MEAT AND PROVISIONS AND FOOD AND DRUGS.

TUBERCULOUS MILK.

14 samples of milk were reported by the Bacteriologist to be tuberculous. Three of these were from one farm, and two from another, so that eleven farms were implicated. All were situated in Northumberland. The cases were reported to the Medical Officer of Health for Northumberland. The following summary shows the results of the action taken.

No result (no diseased cows discovered). Subsequent check samples in Newcastle negative	3
Cows suspected on clinical inspection, but biological examination of milk negative. Subsequent check samples in Newcastle also negative	4
Cows suspected on clinical inspection and positive on biological examination. Newcastle checks negative	1
Cows suspected on clinical inspection, but biological test negative. Newcastle check positive. Further examination and more doubtful cows found. One reported positive. Newcastle check negative	1

Two cows suspected on clinical inspection and two sold after sample taken. Milk of both cows negative. Newcastle checks positive. Three cows then excluded, milk of one of which was positive. (At time of writing a further check has not been taken)	1
Two cows suspected. Milk of both negative. Newcastle checks (two), both positive. Four more cows then suspected, one being one of the previous animals, and two additions to the herd. One positive. Two further checks in Newcastle were positive. One more cow suspected, but milk was negative. Later check in Newcastle also negative	1
	11

Year.	Percentage of Samples found Tuberculous.
1907	5·9
1908	3·8
1909	9·0
1910	5·4
1911	3·0
1912	10·4
1913	8·4
1914	6·7
1915	5·8
1916	8·7
1917	3·1
1918	2·9
1919	3·6
1920	6·3
1921	5·5
1922	7·0
1923	4·5
1924	3·2
1925	8·0
1926	4·0
1927	3·7
1928	3·7

Report of the

Veterinary Officer, Inspector of Meat, etc.

To the Medical Officer of Health.

I have pleasure in submitting the following Report which includes the work of inspection under the Public Health Acts during the year 1928.

DISEASES OF ANIMALS.

Diseases of Animals Acts, 1894-1927.

During the year seven outbreaks of scheduled diseases occurred amongst the animals within the City, as compared with six during the previous year. Four of the outbreaks were due to disease communicable from animal to man.

Foot and Mouth Disease.

It is with considerable satisfaction that one is able to report that the City has remained free from this disease since the year 1924. In other parts of the country, during the year 1928, 138 outbreaks were confirmed by the Ministry of Agriculture, necessitating the slaughter of a total of 11,043 cattle, sheep and swine as diseased or exposed to infection; this being a decrease of six outbreaks and an increase of 1,433 animals slaughtered, respectively, as compared with the previous year. At the beginning of the year under report, the City, along with other parts of the North of England, was responsible for the administration of certain Foot and Mouth Disease Orders, which imposed movement restrictions in consequence of the disease occurring in the Midlands. The restrictions, so far as the City was concerned, were removed as from 19th January, 1928.

Disease in the Irish Free State.

Owing to an outbreak on a farm near Wexford, Irish Free State, having been confirmed, a telegram was received on the 20th February from the Ministry of Agriculture, requesting a veterinary examination of all Irish animals, store and fat, which had arrived within the City during the previous seven days. The necessary detention notice was served pending an examination. Fortunately, one was able to certify a complete absence of disease.

Tuberculosis.

During the year, while inspecting dairy herds within the City, four animals were found affected with one of the forms of the disease which require them to be dealt with under the Tuberculosis Order of 1925. In each case the milk, in the first instance, was excluded from the public supply. The animals were valued and slaughtered, and in two cases it was found necessary to destroy the entire carcass and internal organs as being unfit for sale for human consumption. The owner in each case was paid compensation according to the value of the animal before slaughter, as valued by the Veterinary Officer on behalf of the Corporation, and agreed to by the owner.

When the total amount paid as compensation to owners, costs for slaughtering, etc., was deducted from the total amount obtained through the disposal of carcasses, hides, offal, etc., together with the amount recoverable from the Ministry of Agriculture, there remained a balance of £16 19s. 11d. in favour of the Corporation on the administration of the Tuberculosis Order during the year.

In the course of meat inspection within the City during the year, 521 animals were found, on slaughter, to be affected with the disease, this being an increase of 11·08 per cent., as compared with the previous year.

In 360 cases some part of the carcass or internal organs of each was condemned and destroyed, whilst in the case of each of the remaining 161 animals it was found necessary, owing to the extent and distribution of the disease, to destroy the entire carcass and internal organs.

Anthrax.

Whilst no cases of suspected anthrax were notified during the year, it was found necessary, as a precautionary measure, to examine, microscopically, material from the carcasses of three animals slaughtered within the City, and which presented evidence of imperfect bleeding. Fortunately, in none of the cases, was the disease found present.

Within Great Britain 533 outbreaks of the disease were confirmed, in which 615 animals were attacked, as compared with 438 outbreaks during the previous year, in which 511 animals were attacked.

Rabies.

During the year no suspicious cases have been reported for investigation, and no case of the disease has occurred within the country since the year 1922.

LIVE STOCK AND MEAT SUPPLIES.

During the year under report, according to official Agricultural Statistics, cattle and sheep within Great Britain have decreased by 245,409 and 639,438, respectively, whilst pigs show an increase by 278,420, thus making a total of 7,240,281 cattle, 23,968,314 sheep and 3,166,547 pigs. The number of cattle in England and Wales alone showed a decrease of 248,807, the total being 6,026,433, as compared with 6,275,240 in 1927. The total number of cattle in England and Wales during the year was, therefore, the smallest since the year 1924.

With the exception of Cumberland, Durham and Northumberland, in each of which there was an increase in the production of cattle during the year, every county in England and Wales failed to maintain the standard in this respect.

As occurred in England and Wales generally, the number of sheep produced within Northumberland showed a slight falling off, whereas the number of pigs showed a slight increase, during the year.

The imports of live cattle from countries other than Ireland during the 12 months ending at the beginning of the year under report amounted to 9,639, as compared with 81,745 during the previous year. During the same period, approximately 30,392,000 cwts. of beef, mutton, pork, bacon, hams, etc., were imported into Great Britain. Whilst these figures indicate a considerable reduction in the number of cattle imported, they demonstrate that instead there was an increase in the imports of meat to the extent of approximately 363,000 cwts. As the latter is equivalent to something like 60,000 cattle, it will be observed that the combined total imports (live cattle, beef, mutton, etc.), show a slight decrease, as compared with the previous year. It will be apparent that as a result of the considerable decrease in the imports of live cattle from over the seas, not only the demand for certain feeding stuffs diminishes, but fewer hides, horns and other products are dealt with, thus having a detrimental affect on employment and income spread over the various workers in the agricultural, meat, and allied industries.

Inspection of Meat and Other Foods.

The number of animals slaughtered within the City for food purposes was 191,528, this being a decrease of 4,676 as compared with the previous year.

Of the carcasses and internal organs examined, including those dressed outside and sent into the City for disposal, tuberculosis was found present in those of 521 animals, an increase of 11·08 per cent., as compared with the previous year.

504 animal carcasses, together with 1,989½ lbs. of meat (excluding offal, etc.), were condemned and destroyed as being unfit for human consumption, as compared with 432½ animal carcasses and 4,499 lbs. of meat condemned and destroyed during the previous year. Of the 504 carcasses, 164 (161 carcasses and 12 quarters) were condemned on account of tuberculosis, as compared with 163 (156 carcasses and 28 quarters) condemned for that disease out of the previous year's total of 432½ carcasses.

Whilst the total number of cattle slaughtered was 17,513, or a decrease of 1,733, as compared with the previous year, it may be of interest to observe that the number of whole carcasses from these animals condemned and destroyed on account of tuberculosis was slightly larger, as compared with the number destroyed for that disease during the previous year. On the other hand, the number of whole carcasses of beef condemned and destroyed for conditions other than tuberculosis showed a considerable decrease as compared with the number for the previous year.

For the purposes of the Public Health (Meat) Regulations, 1924, 1,822 visits were made to meat and provision shops, restaurants, stalls, vehicles, etc., and, as a result, 31 contraventions were discovered and dealt with. In each of two of these cases the contravention concerned the opening of a W.C. directly into, or situated within, a room used for the preparation and storage of food. In 17 cases it was necessary to enforce measures for the prevention of food being exposed to the risk of contamination, including two where meat was being transported while improperly covered, In one case, it was found necessary to prevent the use of a room for the purpose of food preparation, because of its direct communication with a room used for the combined purpose of living and sleeping. In three cases butchers were warned against the use of slaughter houses for the purpose of gut-scraping, whilst in eight cases slaughtermen were warned against the practice of meat-blowing. It should be added that in every instance, following the written or verbal request, the offence complained of immediately ceased.

Imported Foodstuffs.

During the year some 295 vessels, carrying foodstuffs from Denmark, Sweden, Holland, Canada, Australia, America, etc., arrived at the Quayside, as compared with 304 vessels during the previous year.

Whilst a year ago a considerable falling off in the imports of American bacon and hams was reported, one has to report that during the year under review these imports reached only half the quantity as compared with the previous year. The imports of sides of Danish bacon, on the other hand, more than made up the deficiency in quantity, for the year's total from this source exceeded the previous year's imports by a little over 13 per cent.

Four hundred and forty-seven visits were made to the wharves and vessels alongside, 1,515 packages, containing meat, etc., being opened and examined. Regarding these visits, five were in response to official notices received from the Customs House concerning foodstuffs detained by the Customs Officials for our inspection and certification.

The imported meat arriving within the City by rail is subjected to inspection and supervision within the wholesale shops and cold storage depots.

Caseous Lymphadenitis.

This is a bacterial disease commonly met with in carcasses of mutton imported from Australia and South America. The condition is a serious one, inasmuch as it is invariably generalised, and when present, entails the loss of the entire carcass. The lesions are generally confined to the lymphatic glands, but have been detected in the muscular system, embedded and hidden from view until dissection. To detect the disease it is necessary to expose and incise certain of the glands ; in some cases, however, owing to the enlargement of the gland involved, the condition may be suspected prior to incision.

Tampering with Carcasses.

Quite recently, consignments of South American mutton have been found to include diseased (caseous lymphadenitis) carcasses, from which certain glands had been removed prior to export. In some cases the removal of glands before shipment to this country had been successful in removing evidence of the disease. In the majority, however, although diseased glands had obviously been removed, other glands in the same carcass which had apparently been overlooked were found diseased. Carcasses from which the important glands have, prior to importation, been removed, are now dealt with in exactly the same manner as carcasses found diseased, *i.e.*, by seizure and destruction.

During the year under report three consignments of mutton arrived within the City from South America, and are briefly referred to as follows :—

(i.) On 24th May, 1,115 carcasses of mutton arrived ex. "S.S. Pardo," from Chili. After examination, 105 were detained and thawed out. Of these, 98, or 8·7 per cent. of the consignment, were found diseased and condemned.

(ii.) On 30th November, 360 carcasses of mutton arrived ex. "S.S. Upwey Grange," from Buenos Aires. After examining the lot, 32 were thawed out for final inspection. Of the 32, 14, or 3·8 per cent. of the total consignment were found diseased. Of the 14 diseased carcasses, it was found that in the case of one of them, although the most important gland had been removed from each fore-quarter, disease was found in one of the hind-quarters. In another, although the glands had been removed from the right fore-quarter, disease was found in the left fore-quarter, and in a deep-seated gland of the right hind leg. In another, the gland of the right fore-quarter had been removed, but disease was found in the left fore-quarter, whilst in the fourth carcass, although the pre-crural gland was found missing from one of the hind-quarters, disease was present in the pre-scapular gland of the right fore-quarter. In addition, important lymphatic glands had been removed from 15 carcasses, in none of which was disease found in any of the glands remaining.

(iii.) On the 31st December. 140 carcasses arrived ex. "S.S. Deseado," from South America. After examining the total, 15 were thawed out for a final inspection. Of these, 6 were found diseased. In one of the latter, although glands had been removed, lesions of the disease were found embedded in the muscular tissues of one of the hind legs. In the 8 remaining carcasses no evidence of disease could be detected, but it was found that from each, one or more of the important glands had been removed.

Not only the 6 diseased carcasses, but also the 8 from which glands, prior to importation, had been removed, were seized and destroyed.

Exported Foodstuffs.

The number of horses slaughtered within the City, for the purpose of the carcasses being exported for consumption on the Continent, was 1,747, as compared with 1,740 slaughtered during the previous year. To meet the requirements of regulations enforced by the Commonwealth of Australia and the Dominion of Canada, concerning the importation of various kinds of cooked foodstuffs into that country, derived from the meat of animals slaughtered within or slaughtered outside and imported into Great Britain, 50 certificates were granted during the year to a wholesale meat preserving firm within the City, concerning the wholesomeness and freedom from disease of materials used in the preparation of consignments for export.

Slaughterhouses.

During the year 102 separate premises (as compared with 101 the previous year) were licensed for slaughtering purposes. These comprise five groups and a number of separate establishments in various parts of the City. Four of the licensed premises are used exclusively for the purpose of horse slaughtering. In addition, there are two establishments near the river in the St. Lawrence district licensed and used as knacker's yards.

Although the question of the provision of central abattoirs, live stock markets, auction rings, lairages, etc., as a combined scheme, has been under consideration, a site suitable for the purpose has not yet been decided upon. As it is essential that the site chosen should be alongside a main railway, it would appear practically certain that the only land available and suitable will not be found nearer than the outskirts of the City.

Humane Slaughtering.

During the year, complaints were received from the Newcastle, Gateshead and District Butchers' Association to the effect that after the use of the mechanical killer, carcasses of beef, mutton and pork had been found deteriorated. As the new bye-laws with respect to slaughterhouses, which came into operation on April 1st, 1928, provide for the compulsory use of mechanically operated instruments (not liberating free bullets) in the stunning of cattle, calves, sheep, and pigs, it was deemed urgent that further enquiries into this subject should be made. In this connection a considerable number of experimental tests, likely to provide the desired information, were designed and carried out by the Veterinary Officer. Briefly, the tests may be interpreted thus :—

Cattle.—During the past 22 years, approximately 40,000 prime bullocks and heifers have been slaughtered in one establishment alone by the use of mechanically operated instruments. Although the carcasses have been regularly inspected, at no time has anything been detected to distinguish them from carcasses of animals slaughtered by the ordinary method, and no complaint has been received as to the efficiency of bleeding, or the method of stunning.

Pigs.—Within the City it has always been the practice to stun pigs with a felling hammer or mallet. The bye-laws require the use, for this purpose, of a captive bolt pistol instead. When the hammer is used the market value of the head is lessened, owing to the damage to the frontal bones, whereas by using the pistol there is nothing more than a clean puncture, and therefore practically no interference with market value. Finally, in the experimental tests, there were exactly twice as many carcasses showing signs of splashing amongst the animals stunned by the old method as compared with those stunned by the captive bolt pistol. These results, as demonstrated by the experiments, do not depend on the type of instrument used, but rather on whether the animal has been stunned or not before bleeding, and the promptness and efficiency of the latter, if stunning has taken place.

Sheep.—It has always been the practice to kill these animals by bleeding without previous stunning.

Experiments were carried out on 384 sheep and lambs by stunning with a captive bolt pistol before bleeding. When the instrument was used for the slaughter of 330 sheep and lambs by rendering the animals unconscious through destruction of the large brain only, and in each case promptly followed by bleeding, the whole of the carcasses on inspection afterwards were found in splendid condition. When. however, the remaining 54 sheep and lambs were stunned with the same instrument by the destruction of either the large brain or other parts of the central nervous system, followed by bleeding, after intervals varying from one to three minutes, exactly 50 per cent. of the carcasses were found more or less deteriorated by reason of imperfect bleeding, splashing, or both.

The question of splashing or other deterioration of carcasses of cattle, in relation to the use of mechanically operated instruments, may be regarded as of little or no importance, for amongst the many thousands from cattle slaughtered within the City during the past 22 years by almost every method of stunning and inspected, the Veterinary Officer has never met with the condition nor had his attention drawn to it. It should be noted also that the condition does not occur in the carcasses of pigs, sheep or lambs killed by bleeding without previous stunning.

So far as pigs are concerned, more cases of splashing, as already pointed out, may occur amongst the carcasses of animals slaughtered by the ordinary method of stunning (the method practised within the City for generations) than amongst those slaughtered by the captive bolt pistol. It will be observed, therefore, that it is only in regard to sheep and lambs slaughtered by mechanical means that the question of deterioration of carcasses really arises, owing to the fact that the ordinary method of killing these animals within the City (bleeding without previous stunning) is one that never causes splashing or associated congestion. It may be added, however, that when sheep and lambs have been stunned by properly using the captive bolt pistol, followed by prompt and efficient bleeding, one will invariably find the carcasses in perfect condition, but when the stunning has been improperly performed, and, particularly when the operation of bleeding has been unduly delayed, one will find amongst such carcasses a percentage more or less deteriorated through splashing, congestion, or both.

Microscopical Examinations.

During the year, microscopical examinations were made, as an aid or confirmation of diagnosis, in connection with twenty separate cases under investigation. The material examined comprised specimens of milk, blood, skin scrapings, and swabs taken from the throats of cows. Of the samples of milk examined for tuberculosis, three were found positive. In none of the specimens of blood examined for anthrax was that disease found present. In two of the four throat swabs, acid fast bacilli were found present, whilst streptococci were found present in milk obtained from an udder, thus confirming the form of mastitis diagnosed clinically. In all cases the examinations of skin scrapings gave negative results.

Rats and Mice (Destruction) Act, 1919.

During the year 88 visits were made to premises in respect of complaints received, and to other premises involved. Of the 138 separate premises dealt with, rats were found infesting 77, the remaining 61 being found free from the pests. Poisons and traps have been made use of with considerable success in many cases; in others, it was found necessary to have certain structural defects remedied before the pests could be eliminated. Whilst the problem of keeping premises ratproof is one that largely involves the question of building construction and repair, the duty of preventing the accumulation of rubbish as an attraction to rats within premises, beside protecting edible articles of every description, is one that entirely devolves upon the occupiers.

The Milk and Dairies Order of 1926.

Within the City there are 19 cow-keepers, who occupy 31 cowsheds on 20 premises, and possess a total of 308 milch cows. During the year 97 visits were made to the cowsheds and dairies for the purpose of inspecting the buildings, and the conditions as to cleanliness, etc.

Diseased Cows Found in Registered Premises Within the City.

Year.	No. of Cow-keepers.	No. of Registered Cowsheds.	No. of Dairy Premises.	No. of Milch Cows in City.	No. of Diseased Cows.				
					Tuberculosis		Other Diseases		Destroyed. (under the Tuberculosis Order, 1925)*
					Of Udder.	Other than Udder.	Udder.	Other than Udder.	
1909	41	..	..	527	5	2	4	1	5
1910	38	41	..	503	1	1	8	..	1
1911	37	44	38	497	1	..	4	..	1
1912	37	44	37	465	2	..	1	..	..
1913	31	43	33	489	2	2	..	..	..
1914	31	43	33	510	1	1	1	..	..
1915	31	43	33	554	3	..	6	..	..
1916	30	44	32	536	2	2	12	..	1
1917	30	44	32	512	1	..	..	..	..
1918	29	43	31	622	..	..	..	..	..
1919	27	41	29	594	..	..	..	..	..
1920	26	40	28	565	..	..	..	..	..
1921	25	38	26	575	..	..	..	..	..
1922	25	39	26	489	..	..	..	..	..
1923	25	39	26	484	2	..	8	..	1
1924	22	34	23	436	3	2	2	..	4
1925	21	33	23	337	9	..	1	..	3*
1926	20	31	21	410	5	2	1	3	5*
1927	18	29	19	334	2	4	2	3	6*
1928	19	31	20	308	3	1	1	3	4*

NUMBER OF ANIMALS EXHIBITED WITHIN THE NEWCASTLE CATTLE MARKET.

Year.	Cattle.	Calves.	Sheep.	Swine.	† Dairy Cows.
1887	110,074	8,780	325,473	28,964	—
1897	99,084	7,304	340,382	31,798	—
1908	87,447	8,145	302.608	38,466	—
1909	85,110	6,950	323,780	31,189	—
1910	77,347	6,469	306,703	27,089	—
1911	70,337	5,841	305,418	37,754	—
*1912	48,222	4,646	227,046	32,562	—
1913	63,683	4,455	271,887	27,468	—
1914	55,617	4,376	258,976	26,507	—
1915	53,689	3,677	248,291	25,062	—
1916	52,251	980	248,356	23,796	—
1917	47,906	1,192	216,920	15,474	—
1918	32,948	42	201,071	148	—
1919	33,664	329	145,613	89	—
1920	32,577	2,064	129,606	5,923	—
1921	35,000	1,765	210,000	1,154	—
*1922	21,921	1,432	140,389	16,521	278
*1923	28,828	1,665	138,447	5,545	99
*1924	18,555	458	68,654	15,684	—
1925	31,397	1,394	135,468	3,302	512
1926	29,368	755	147,461	893	413
1927	32,697	1,318	182,409	1,045	500
1928	33,531	1,585	201,825	2,644	395

The Market Day was changed from the Tuesday to the Monday of each week as from 31st July, 1922.

* Market closed for some time during each of these years owing to extensive outbreaks of Foot-and-Mouth Disease in the district.

† Milch Cows sold on Fridays within the Cattle Market lairs.

ANIMALS SLAUGHTERED ON LICENSED PREMISES WITHIN THE CITY.

YEAR 1928.			1927.	1926.	1925.	1924.
Horses		1,747	1,740	1,416	2,244	2,710
Cows	842	17,513	19,246	17,970	18,486	19,788
Heifers ...	10,621					
Bulls	393					
Bullocks ..	5,657					
Calves		4,299	5,249	4,764	3,763	4,348
Sheep		121,005	137,120	104,065	94,950	70,788
Pigs		46,964	42,849	34,427	36,021	51,284
Total Animals		191,528	206,204	162,642	155,464	148,918

Cattle, Calves and Pigs Slaughtered within the City. (See also Table No. 5.)	Number of Animals found Diseased, Unsound or otherwise unfit for Human Consumption.		*Number of Animals found Tuberculous.	
	Whole Carcasses Condemned.	Parts or Organs Condemned.	Whole Carcasses Condemned.	† Parts or Organs Condemned.
Year 1928.	Year 1928.			
Cows 842	66	69	61	61
Heifers 10,621	28	52	27	33
Bulls 393	2	2	2	1
Bullocks 5,657	19	38	19	32
Totals.... 17.513	115	161	109	127
Calves 4,299	26	4	1	—
Pigs 46,964	101	510	51	231

† Sex not known, 2.

* The figures representing the numbers of animals found tuberculous on slaughter do not necessarily indicate the total number of animals affected with disease, because under the present slaughter-house system it is impossible to guarantee that all those slaughtered are subjected to inspection.

CARCASSES OF BEEF CONDEMNED WITHIN THE CITY DURING THE PAST NINETEEN YEARS.

Total Condemned.		Numbers condemned on account of Tuberculosis.	Percentage Tuberculous.
Year.	Carcasses.	Carcasses.	Per Cent.
19 0	116	110	94·82
1911	88	79	89·77
1912	79	73	92·40
1913	92	89	96·73
1914	83	70	84·43
1915	96	88	91·66
1916	109	103	94·49
1917	98	92	93·87
19 8	2 0	182	79·13
1919	306	267	73·0
1920	198	171	86·36
1921	90	78	86·66
1922	85	79	92·94
1923	69	58	84·05
1924	66	61	92·42
1925	157	130	82·80
1926	126	102	80·95
1927	123	107	86·99
1928	115	109	94·78

NOTE.—The above refers to whole carcasses and quarters, but does not indicate the total number of animals found tuberculous, and therefore does not include those carcasses in which only the organs or parts were found diseased and condemned See preceding table.

NUMBER OF VISITS AND INSPECTIONS OF PREMISES DURING THE YEAR 1928.

	Central Markets.			Meat Shops.		Fish Shops.		Provision Shops.		Fruit Shops.						
Slaughter Houses.	Meat and Provisions.	Fruit and Vegetables.	Fish.	Wholesale.	Retail.	Wholesale.	Retail.	Wholesale.	Retail.	Wholesale.	Wharves and Vessels.	Cold Stores.	Goods Stations (Fish Docks).	Food Preparing Factories.	Restaurants.	Stalls, Carts, etc.
16,684	389	283	271	3,195	621	91	6	45	8	3	447	64	14	3	13	1180

Foreign Meat, etc., Arriving by Vessel.

Fresh Offal, etc. (Packages).

PIG.—2,102 feet, 1,738 maws, 20 tongues, 1,372 heads, 424 sausage casings, 34 rinds and 19 cheeks.

Frozen Meat.

BEEF.—25,407 fore and hind quarters, 700 crops and 100 packages of boneless shin beef.

Offal (Packages).

OX.—1,756 livers, 235 ox heads, 851 tongues, 471 kidneys and 238 tails.

Salted Meat.

PORK.—265 barrels.

Other Goods (Cases, etc.).

11,920 American bacon and hams, 1,137,672 sides Danish bacon, 5,853 Dutch boneless sides bacon, 37,348 tinned meats, 179 sausages and 1 smoked reindeer tongue.

NUMBER OF VESSELS AND ORIGIN, ARRIVING WITH FOOD.

Denmark.	Holland.	Norway.	America.	Canada.
106	105	1	2	37

Sweden.	Australia.	Brazil.	Madagascar.
40	2	1	1

Total Weight of Meat and Other Foodstuffs Condemned.

The approximate total weight of meat and other foodstuffs condemned during the year was 76 tons 15 cwts. 2 qrs. 23 lbs., comprising :—

	tons.	cwts.	qrs.	lbs.
Beef, Mutton, Veal, Pork	47	8	1	17
Offal, Provisions, etc.	29	7	1	6
	76	15	2	23

Poultry, Game, Fish, Fruit and Vegetables, Provisions, &c., Destroyed as being Unfit for Human Consumption during the Year 1928.

Cause of Unfitness.	Poultry and Game.		Fish.		Fruit and Vegetables.		Provisions, &c.	
Unsound and Unwholesome.				lbs.				lbs.
	Chickens ..	19	Cod Roe	3,360	Apples............	16 boxes 112 lbs.	Cheese	5,040
	Fowls 90 lbs.+	10	Fish (Mixed)	232	Apricot Pulp...............	2 cases	Confectionery.....	450
	Pigeons ...	29	Fillets 24 boxes +	12	Cauliflower-in-brine..........	4 casks		No.
	Rabbits ...	35	Findon Haddock ..	14	Currants	6 tons	Eggs	2,651
			Herring	224	Grapes	16 barrels		lbs.
			Haddocks	126	Pears	1,800 lbs.	Pork Pies	14
			Halibut	576	Potatoes	3 tons 3 cwts.	Sausage..........	18
			Plaice	1,121	Tomatoes	18 boxes	Tinned Goods.	Tins.
			Salmon	8½			Apricots	2
			Smelts	520			Beans..	1
			Trout...........	211½			Brislings	1
			Shell				Cream	14
			Prawns......	88 + 120			Milk	629
							Paste	1
							Peaches	54
							Peas	1,027
							Plums	2
							Pears	36
							Pineapples	13
							Prawns	41
							Rasps	1
							Tomatoes	9
								lbs.
							Brawn............	2,411
							Corned Beef.......	9,555
							Chicken & Ham Paste	7
							Frozen Eggs	28
							Lunch Tongue	220½
							Pressed Pork	32

Carcasses, &c., Destroyed as Being Unfit for

	Carcasses, &c.					Lungs.			Hearts.		Kidneys.	
	Beef.	Veal.	Mutton.	Pork.	Horse.	Sets Ox.	Sets Sheep.	Sets Pig.	Ox.	Pig.	Ox.	Pig.
Tuberculosis	109+12 qrs.	1	..	51	..	146	..	4	12	1	..	..
Swine Fever	..	..	..	..	..	..	..	..	..	..	..	..
Actinomycosis	..	..	..	..	..	..	..	..	..	..	..	..
Pyrexia	..	..	2	16	..	..	..	..	..	..	..	..
Septic Conditions	3	1	1	..	..	..	..	..	..	..	..	..
Mastitis	..	..	2	..	..	..	..	..	..	..	..	..
Jaundice	..	..	..	2	..	..	..	..	..	..	..	..
Fatty Degeneration	..	..	..	..	..	..	..	..	..	..	..	..
Sarcoma	1	..	..	..	..	..	..	..	..	..	..	..
Angioma	..	..	..	..	..	..	..	..	..	..	..	..
Caseous Lymphadenitis	..	..	112	..	..	..	..	..	..	..	..	..
Pneumonia	..	1	6	..	..	2	8	49	..	..	..	..
Pleurisy	..	2	..	..	..	2	..	3	..	..	..	..
Pleurisy and Peritonitis	..	3	1	6	..	..	..	..	..	..	..	..
Pericarditis	..	..	..	..	..	..	..	..	4	..	..	..
Peritonitis	..	..	3	1	..	..	..	..	..	..	..	..
Nephritis	..	..	..	..	..	..	..	..	..	..	4	4
Necrosis	..	..	..	..	..	..	..	..	..	..	..	..
Cirrhosis	..	..	..	..	..	..	..	..	..	..	..	..
Œdema and Emaciation	1	..	41	2	..	..	..	..	..	..	..	..
Abscesses	..	..	3+3 lbs.	1	..	10	6	1	..	..	..	..
Parasites (distomatosis, cysts, etc.)	..	..	..	..	..	4	9	..	..	..	..	..
Imperfect Bleeding, Congestion, etc	1	7	59	16	1	2	..	1	..	..	6	..
Immaturity	..	1	..	..	..	..	..	..	..	..	..	..
Traumatism	2 qrs. + 121 lbs.	32 lbs.	5+6 qrs. +12 lbs. +2 legs.	1 qr. +12 lbs.	..	..	..	..	..	..	..	..
Decomposition	1370 lbs.	9	21+3 qrs. +271½ lbs.	6+168 lbs.	..	10	4	4	1	93 lbs.	43 lbs.	..

HUMAN CONSUMPTION DURING THE YEAR 1928.

Livers.			Heads.				Plucks.			Cow's Udders.	Cow's Feet.	Tongues.			Ox Tails.	Ox Tripe.	Pig Maws.	Caul Fat.		Sweetbreads.	Pig Stomachs and Intestines.
Ox.	Sheep.	Pig.	Ox.	Calf.	Sheep.	Pig.	Calf.	Sheep.	Pig.			Ox.	Sheep.	Pig.				Ox.	Pig.		
74	..	..	45	..	..	129+5 halves.	..	..	73	2	..	18	..	41	..	..	..	37	5	..	17
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	284
..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
4	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	33	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	2	3	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
168	43	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
25+6 lbs.	2	..	..	..	..	..	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..
42+613 lbs.	533	29	..	..	..	..	..	104	7	..	..	..	..	..	..	..	..	..	..	..	..
2+6 lbs.	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
18	14	..	6	1	81	2+728 lbs.	1	280+50 lbs.	29	..	4	..	22	2	56	792 lbs.	34+3 cwt. barrels.	..	..	81 lbs.	2

Yours faithfully,

Town Hall,
Newcastle-upon-Tyne,
8th August, 1929.

THOMAS PARKER, F.R.C.V.S.,
Veterinary Officer.

FOOD AND DRUGS ADULTERATION, Etc.

Total Samples.—The number of samples of foods and drugs obtained for analysis during the year was 1,157, as compared with 1,160 in 1927. They were of a most varied nature, and included most articles in common use in the household. Of this number 611 were submitted to the Public Analyst, the remainder being samples of milk which were tested in the office and found to be genuine.

Informal Samples.—304 informal samples were taken as against 339 last year. Although legal proceedings cannot be taken in the event of such a sample not being genuine, this method is a guide to the general quality of food stuffs sold in any particular district. Any adulterated samples are followed up by taking "formal" or "official" samples, so that legal proceedings may be taken if necessary.

Milk Samples.—As usual, the greatest number of samples obtained has been of milk, one of the most important articles of food, and one which unfortunately lends itself to fraudulent practices. 847 samples were taken, and of these 54 were certified to be below the minimal limits fixed by the "Sale of Milk Regulations, 1901." Of this number 25 were deficient in non-fatty solids, 21 in milk fat, and 8 in both. The percentage of deficiency in fat varied from 1·6 to 28·3 (the average being 10·24), and of solids not fat from 1·3 to 8·8 (average, 4·07. This is not quite such a satisfactory record as last year's.

"*Appeal to Cow*" *Samples.*—17 of the samples were taken at farm or byre after seeing the cows milked; 10 of these proved to be genuine and 7 deficient.

Samples not Genuine, etc.—The percentage of all samples not genuine to the total number taken was 6·13 (compared with 3·96 for the previous year), and the percentage of non-genuine milk samples to the total number of milk samples obtained was 6·37 (as against 4·10 in 1927). The total number of samples taken was at the rate of 4·11 per 1,000 of the population (estimated) of the City for the year 1928. This is in excess of the number suggested by the Ministry of Agriculture (viz., 3 per 1,000 of the population).

Margarine Act, 1887.—21 samples of margarine were purchased and analysed. All were genuine, free from preservatives, and in compliance with the requirements of the Act in all other respects.

Margarine Warehouses.—43 visits were made to the registered margarine warehouses in the City. The packages were examined as regards proper marking, and all found to comply with the Act.

Preservatives in Food.—Of the total samples obtained for analysis (1,157), only 48 contained preservative, the quantity being in most instances well within the limits allowed.

In the case of 3 samples of sausage and 1 of sausage meat, the allowable limit of sulphur dioxide was exceeded, the offences being met by cautions ; in 4 other instances, in which the amount of this preservative was below that permitted, but its presence was not declared as required, the vendors were also cautioned. (For details see " Offences other than Adulteration.")

3 samples of cream contained boric acid, and 1 of candied peel contained sulphur dioxide in excess of the quantity allowed. The vendors of these were also cautioned.

At the request of the Ministry of Health 7 samples of oranges were submitted for special examination as to the presence of preservatives attributable to the practice of "dipping" in the country of origin. All these contained boric acid, averaging 0·07 grains per lb. both in the skin and pulp.

The matter was the subject of correspondence between the Ministry, the Medical Officer of Health, and the Public Analyst, and it appeared to be questionable whether the preservative had been added artificially to the fruit or was of natural incidence.

OFFENCES OTHER THAN ADULTERATION.

OFFENCE.	NO. OF CASES.	ACTION TAKEN, ETC.
Milk and Dairies (Amendment) Act, 1922 *: Sec.* 2 *: and Milk and Dairies Order,* 1926 *; Sec.* 6 :—		
Milk sold under unsuitable conditions.	8	In 7 instances the registration was withdrawn, and in 1 the offender was cautioned.
Selling milk without being registered for the purpose.	1	Offender cautioned.
Milk and Dairies Order, 1926 :— Milk churns and/or other receptacles in a condition contravening the above Order (Sec. 27-29).	6	Offenders cautioned.
Churn and hand-can containing skimmed milk for sale not marked with the words: "skimmed milk" (Sec. 30).	1	Offender cautioned.
Milk bottled on street (Sec. 31 (2)).	2	Offenders cautioned.
All practicable precautions not used to prevent contamination of milk by dust, dirt, etc. (Sec. 32).	2	Offenders cautioned.
Carried forward ...	20	

OFFENCES OTHER THAN ADULTERATION—*continued.*

Offence.	No. of Cases.	Action taken, etc.
Brought forward ..	20	
Milk and Dairies (*Consolidation Act*, 1915, *Sec.* 6 :— Selling milk from cans not inscribed with the name and address of the vendors.	2	Offenders cautioned.
Milk and Dairies (*Amendment*) *Act*, 1922 ; *Sec.* 3, 1 (*b*) :— Unlicensed person selling milk from a hand-barrow bearing the words "Grade A.T.T. Milk."	1	Offender cautioned. (*Note.*—A licence to retail was afterwards applied for and granted).
Public Health (*Preservatives, etc., in Food*), *Regulations*, 1925–1927 :— Selling Sausage containing sulphur dioxide (within the limit allowed) the presence of which was not declared as required. (Informal Sample No. 363). (Formal Sample No. 427).	2	From one vendor, who was cautioned.
Do. (Informal Sample No. 367).	1	Vendor cautioned. (*Note.*—A subsequent sample, taken formally, was free from preservative).
Do. (Informal Sample No. 369).	1	Do.
Total	27	

The Public Health (Condensed Milk) Regulations, 1923-1927, and the Public Health (Dried Milk) Regulations, 1923-1927.

12 samples of condensed milk and 6 of dried milk were obtained, all being genuine and in compliance with the Regulations with regard to composition and labelling.

BACTERIAL IMPURITY OF MILK AND WATER.

Milk.—376 samples were examined by the Bacteriologist for the presence of tubercle bacilli, which were found in 14, or 3·7 per cent.

Action taken is described on page 209.

189 samples were examined for evidence of excremental pollution, which was found to an undesirable degree in 30, or 15·9 per cent. In every case the Medical Officer of Health of the district from which the milk originated was informed, with the result that steps were taken to secure more cleanly methods of production.

Approximate amount of Certified and Grade A. (Tuberculin Tested) Milk received in the City daily.—

Certified—70 gallons.

Grade A. (Tuberculin Tested)—600 gallons.

Cleanliness of Milk Churns.—During the year 23,075 churns awaiting return to the farmers were examined at the various railway stations in the City. Of this large number, only 20 (as compared with 29 in 1927) were found in an uncleansed condition. The offender in each case was cautioned by the Medical Officer of Health.

In addition, 4,621 churns in course of transit through the City were also examined, and none (3 last year) were found in a dirty condition.

Water.—Samples were collected from all parts of the City and at the water works, and examined for the presence of *bacillus coli*.

The results are described on page 152.

PREMISES ON WHICH FOOD IS PREPARED.

Bakehouses.—There are in the City 265 bakehouses, of which 31 are factories (*i.e.*, places in which mechanical power is used), and 234 are workshops.

The number of " domestic " bakehouses, or private dwelling houses in which the occupier makes bread for sale amongst the neighbours, is 98. Domestic bakehouses are under the same supervision as when the

Samples taken for Analysis during the Year 1928.

ARTICLE.	No. of Samples obtained.			Result of Analysis.			Action taken.				REMARKS.
	Formal.	Informal.	Total.	Genuine.	Not Genuine.	Doubtful.	Prosecutions.	Convictions.	Cases Dismissed.	Cases Withdrawn.	
New Milk	833	14	847	793	54	..	17	13	4	..	In 10 cases ("appeal to cow" samples, etc.) no proceedings were taken, and in the remaining 27 (of the 54 samples "not genuine") the vendors were cautioned by order of the Health Committee.
Skimmed Milk	1	..	1	1	..	..	..	..	..	..	
Condensed Milk (including "Evaporated" Milk)	..	12	12	12	..	..	..	..	..	..	
Dried Milk	1	5	6	4	2	..	1	1	..	..	The samples "not genuine" (informal and formal, from one vendor), were deficient in fat, 7·0 and 10·4 per cent. respectively. The vendor was summoned and fined £5.
Cream	2	14	16	13	2	1	..	..	..	..	The samples "not genuine" contained boric acid 0·04 and 0·15 per cent. respectively. These were from the retailer and wholesaler, both of whom were cautioned. The "doubtful" sample (informal) also contained boric acid 0·1 per cent., the presence of which (the Analyst suggested) was probably accidental.
Butter	3	17	20	19	1	..	..	..	..	..	The sample "not genuine" (informal) contained 0·5 per cent. excess water. A subsequent (formal) sample was genuine, and the vendor was cautioned.
Margarine	..	21	21	21	..	..	..	..	..	..	
Coffee	..	2	2	2	..	..	..	..	..	..	One of the samples contained 33 per cent. of Chicory, but was declared a "mixture."
Cocoa	..	1	1	1	..	..	..	..	..	..	
Tea	..	5	5	5	..	..	..	..	..	..	
Sugar	..	9	9	9	..	..	..	..	..	..	
Flour (including self-raising flour)	..	2	2	2	..	..	..	..	..	..	
Wholemeal	..	1	1	1	..	..	..	..	..	..	
Oatmeal	..	1	1	1	..	..	..	..	..	..	
Semolina	..	1	1	1	..	..	..	..	..	..	
Barley	..	2	2	2	..	..	..	..	..	..	
Rice	..	5	5	5	..	..	..	..	..	..	
Ground Rice	..	1	1	1	..	..	..	..	..	..	
Custard Powder	..	1	1	1	..	..	..	..	..	..	
Baking Powder	..	1	1	1	..	..	..	..	..	..	
Corn Flour	..	3	3	3	..	..	..	..	..	..	
Egg Powder	..	1	1	1	..	..	..	..	..	..	
Sago	1	3	4	1	3	..	..	..	..	..	The samples "not genuine" consisted entirely of Tapioca. In one instance the formal sample showed a similar result. In the other case a formal sample could not be obtained, the shop-keeper stating that he did not sell "Sago." Both cases were met by a caution.
Tapioca	..	1	1	1	..	..	..	..	..	..	
Arrowroot	..	1	1	1	..	..	..	..	..	..	
Pepper	..	3	3	3	..	..	..	..	..	..	
Mustard	..	4	4	4	..	..	..	..	..	..	
Vinegar	1	5	6	4	2	..	..	..	..	..	The samples "not genuine" (informal and formal, from one vendor) were deficient in acetic acid 25·0 and 7·5 per cent respectively. The case was met by a caution.
Pickles	..	3	3	3	..	..	..	..	..	..	
Ground Ginger	..	3	3	2	1	..	..	..	..	..	The sample "not genuine" (informal) consisted entirely of Black Pepper. This had evidently been supplied in error (as subsequent efforts to obtain a formal sample were unsuccessful, the shop-keeper stating that they did not stock "Ground Ginger,") and no further action was taken.
Essence of Almonds	..	1	1	1	..	..	..	..	..	..	
Lard	..	12	12	12	..	..	..	..	..	..	
Bacon	..	5	5	5	..	..	..	..	..	..	
Cheese (Cheshire)	..	1	1	1	..	..	..	..	..	..	
Sausage (including Sausage Meat and Mince Meat)	7	21	28	24	4	..	..	..	..	..	The samples "not genuine" contained preservative (sulphur dioxide) above the limit allowed. The vendors were cautioned.
Meat Paste	..	1	1	1	..	..	..	..	..	..	
Split Peas	..	1	1	1	..	..	..	..	..	..	
Jams, Jellies, and Marmalade	..	11	11	11	..	..	..	..	..	..	
Golden Syrup	..	1	1	1	..	..	..	..	..	..	
Tinned Fish (Salmon and Bristling)	..	2	2	2	..	..	..	..	..	..	
Lemonade Powders, Fruit Crystals, etc.	..	7	7	7	..	..	..	..	..	..	
Herbs (Seasoning)	..	2	2	2	..	..	..	..	..	..	
Raisins	..	4	4	4	..	..	..	..	..	..	
Currants	..	13	13	13	..	..	..	..	..	..	
Candied Peel	2	4	6	5	1	..	..	..	..	..	The sample "not genuine" (informal) contained preservative (sulphur dioxide) above the limit allowed. A subsequent formal sample proved to be genuine, and the case was met by a caution.
Glacé Cherries	..	1	1	1	..	..	..	..	..	..	
Table Jelley and Gelatine	..	2	2	2	..	..	..	..	..	..	
Fresh Fruits	..	18	18	18	..	..	..	..	..	..	Boric acid found in 7 samples of Oranges.
Tinned Fruits	..	3	3	3	..	..	..	..	..	..	
Tinct. of Rhubarb	..	6	6	6	..	..	..	..	..	..	
Syrup of Rhubarb	..	4	4	4	..	..	..	..	..	..	
Gregory Powder	..	4	4	4	..	..	..	..	..	..	
Paregoric	..	5	5	5	..	..	..	..	..	..	
Tartaric Acid	..	2	2	2	..	..	..	..	..	..	
Cream of Tartar	..	2	2	2	..	..	..	..	..	..	
Sweet Spirits of Nitre	1	2	3	2	1	..	1	1	..	..	The sample "not genuine" was deficient in ethyl nitrite 43 per cent., the vendor being summoned and fined £2.
Glycerine	..	6	6	6	..	..	..	..	..	..	
Olive Oil	..	8	8	8	..	..	..	..	..	..	
Camphorated Oil	..	7	7	7	..	..	..	..	..	..	
White Precipitate Ointment	..	3	3	3	..	..	..	..	..	..	
Glaubers' Salts	..	2	2	2	..	..	..	..	..	..	
Raspberry Vinegar and Olive Oil	..	1	1	1	..	..	..	..	..	..	
Rum	1	..	1	1	..	..	..	..	..	..	
TOTALS	853	304	†1157	1085	71	1	19	15	4	..	Amount of Penalties obtained—£26 10s. 0d.

† Includes 73 samples taken in "course of delivery" (at railway stations, hospitals, etc.).

business is carried on in an ordinary bakehouse, and, generally speaking, are found to compare favourably with more pretentious and larger premises used for the same purpose.

Restaurant Kitchens (which include hotels, cafés, and dining rooms).—5 have been added during the year, the number on the Register now being 118. They are regularly inspected, and in no case was it found necessary to serve a notice, a few minor contraventions being dealt with at the Inspector's visit.

Fried Fish Shops.—The number of these increased from 151 to 156 during the year. For comments see "Offensive Trades" (section VI).

Ice Cream Manufactories and Retail Shops.—68 applications were received during the year for permission to make and/or sell this commodity. 25 were refused, the general sanitary conditions of the premises not being up to the standard.

The number of manufactories has been increased from 115 in 1927 to 130 in 1928, and the number of retailers from 181 to 192.

The premises of both manufacturers and retailers are regularly inspected. In the case of manufacturers, they are advised that the persons actually engaged in making the ice cream be supplied with white washable overalls, which is done in many cases. Unfortunately, however, under the existing law, this cannot be insisted upon.

The Milk and Dairies (Amendment) Act, 1922, *Sec.* 2; and *The Milk and Dairies Order*, 1926, *Sec.* 6.—During the year 59 applications were received for permission to retail milk, 46 being granted and 13 refused on sanitary grounds. At the close of the year there were 646 retail milk-shops in the City, including 42 belonging to 10 large dairy companies. Of the total, 84 were shops in which only dairy products and like commodities were retailed, 260 were shops selling other articles, and 42 were hawkers. The last-named type of milk dealer is not now registered. During the year 13 applications for registration were received from intending hawkers, but all were refused. It is ultimately intended to remove those at present on the Register, as they are a continual source of trouble to the Department, and certainly no credit to the trade. Much might be done by the wholesale dairymen by refusing to sell milk to them and ceasing to lend or store their milk cans. The remaining 260 shops sold a sterilised milk in stoppered bottles.

Automatic Milk Machines.—The two machines which were fixed in 1927 have now been removed, apparently owing to their not being a financial success.

C. Raimes,
Inspector under the Sale of
Food and Drugs Acts, etc.

Health Department,
Town Hall,
20*th June*, 1929.

REPORT OF THE
CHIEF SANITARY INSPECTOR.

VI.—THE HOME AND THE WORKSHOP.

NUISANCES, HOUSING, FACTORIES AND
WORKSHOPS, Etc.

NUISANCES, HOUSING, FACTORIES AND WORKSHOPS, ETC.

The following is the

Report of the Chief Sanitary Inspector.

To the Medical Officer of Health.

Sir,

I have pleasure in submitting the following report on the work carried out in my Section of the Department during the year ended December 31st, 1928.

NUISANCES.

The number of nuisances reported upon and dealt with during the year was 13,075, which is an increase of 1,788 over last year. As usual, they were of a most varied nature. Many could have been abated, or rather should never have arisen, had a little care and forethought been exercised by the complainants. One of the most frequent is the choked drain. On inspection it is usually found not to be the drain, but the gully which is choked with dirt, coals, ashes, etc., due to the carelessness of the occupier. The same remarks apply to choked waste pipes and water closets.

One of the most serious cases dealt with was in connection with offensive smells emanating from an artificial manure works in the east end of the City during July and August. On several occasions the smells were distinctly perceptible fully a quarter of a mile distant. Altogether about 70 complaints were received, one being accompanied by a petition containing 400 signatures. For some years this factory had been a source of frequent complaints. Informal notices and interviews with the management being of no avail, statutory notices were served, on which steps were taken to effectually abate the nuisance. A new condensing plant was installed; covered galvanised iron receptacles provided for the storage of raw material; floors relaid with cement concrete; and other works carried out. The expense incurred has been justified, for since these improvements were completed, not a single complaint has been received, and no contraventions found during the periodical visits of the District Inspector.

Overcrowding.

Overcrowding still continues to a very serious extent, and unfortunately shows no signs of abating. It is one of the most difficult and distressing problems which have to be dealt with. In the great majority of cases overcrowding is found to be in sub-let rooms, and curiously the statutory tenant only discovers this when the sub-tenant falls into arrears with the rent. Complaint is then received about the shocking conditions existing. It is rarely of any avail to serve an overcrowding notice, and usually an attempt is made by the District Inspectors to obtain other accommodation, and in this way many sad cases have been relieved.

Notices Served.

The following are the numbers of notices and letters issued during the year :—

Total number of notices served :—		
Informal	5,474	
Statutory	1,181	
		6,655
Number of letters sent		2,483
Number of circular letters sent		1,900
Total		11,038

Magisterial Proceedings.

Considering the total number of letters sent out and notices served (11,038), it is worthy of note that it was only necessary to take legal proceedings in 28 cases. In the remaining instances in which proceedings were ordered by the Health Committee, the necessary work was carried out without the issue of summonses. For details see page 257.

The Rent and Mortgage Interest (Restrictions) Acts.

Only two applications were received this year from tenants for certificates that their houses were not " in all respects reasonably fit for human habitation " or otherwise " not in a reasonable state of repair." After inspection of the premises certificates were granted in both cases, and the necessary works carried out by the owners, only one of whom applied for a certificate that they were completed.

Conversion of Dry Closets to Water Closets.

This important part of the work still goes on, and it is a source of great satisfaction that so much is accomplished without having recourse to legal proceedings. The property now being dealt with is of comparatively recent erection, consequently the pail closets and " cell " privies are in the majority of cases in fairly good condition, and conversions can only be obtained by the exercise of the greatest care and tact. The great majority of the closets of this type are situated in the Byker and Walker districts. In the latter area the ground is leasehold, and in many cases the leases have only a short time to run. In the City proper there are very few dry closets remaining.

It may now be safely stated that we are within measurable distance of having the entire City on the water closet system. The number converted in 1928 is 493 (against 713 in 1927), and of this number 421 were pail closets, 4 privies (with 3 ashpits), and 68 "cell" privies. 61 "dry" ashpits were also removed and replaced by portable dustbins. In connection with these conversions, 573 dust-bins were supplied by the Corporation, and delivered at the houses free of cost.

In consequence of complaints from owners that water closets are frequently choked by the carelessness of tenants, a circular letter is now left with each occupier giving an abstract of Sec. 21 of the Public Health (Amendment) Act, 1890, which provides that if any person injures or improperly fouls any sanitary convenience or anything used in connection therewith, he shall be liable to a penalty not exceeding 10s. The circular also contains instructions as to the proper use of the closets. This has had a most salutary effect, and is greatly appreciated by owners and agents.

RETURN OF "DRY" CLOSETS IN THE VARIOUS WARDS OF THE CITY

WARDS.	Total No. Privies.	Pail Closets.	Cell Privies.	Privies and Ashpits.	
				Privies.	Ashpits.
St. Nicholas'	..	..	..	..	..
St. Thomas'	6	5	..	1	1
St. John's	1	1	..	..	..
Stephenson	..	..	..	..	..
Armstrong	..	..	..	..	..
Elswick	38	38	..	..	..
Westgate	2	2	..	..	..
Arthur's Hill	..	..	..	..	..
Benwell	4	..	3	1	1
Fenham	29	14	5	10	5
All Saints'	27	27	..	..	..
St. Andrew's	10	10	..	..	..
Jesmond	..	..	..	..	..
Dene	..	..	..	..	..
Heaton	2	2	..	..	..
Byker	378	378	..	..	..
St. Lawrence	672	670	..	2	2
St. Anthony's	135	135	..	..	..
Walker	163	4	130	29	16
Total in City	1,467	1,286	138	43	25

Smoke Abatement.

During the year it was found necessary to serve two statutory notices under the Public Health (Smoke Abatement) Act, 1926, one upon the owners of a laundry to adopt means to prevent the emission of grit and gritty particles from the chimney, and another on the owners of a brewery to prevent the emission of black smoke.

In the first mentioned case it was not until instructions to take legal proceedings were ordered that steps were taken to abate the nuisance. Ultimately, by using a better quality of fuel, a very great improvement was made. Observations are being continued. In the case of the brewery, again by using a better class of fuel, together with careful stoking, good results have been obtained. Towards the end of the year many complaints (which were amply justified) were received as to the emission of black smoke from the boiler chimney of the City Baths, Northumberland Road, which had just been opened. Representations were made to the Baths and Wash-Houses Committee, who ultimately decided to instal a smoke preventing apparatus after the turn of the year. This has now been done, and from a daily observation of over six weeks no nuisance whatever has been found.

The following table gives details as to smoke inspection :—

No. of chimneys watched.	No. of observations made.	No. of chimneys from which black smoke issued in such quantity as to be a nuisance for periods of over 5 minutes in the aggregate during one hour.	No. of times when smoke issued so as to be a nuisance.	No. of notices served for the abatement of smoke nuisances.		No. of Prosecutions.
				Informal.	Statutory	
106	802	12	20	38*	2	..

* Includes communications sent in respect of excessive " medium " smoke.

Atmospheric Pollution Records.—Three observation stations, under the immediate control of the City Analyst, are placed—one on an open site in Keelman's Hospital, City Road, one in Westgate Cemetery, and one in the grounds of the Moor Hospital, in connection with similar stations in other towns, the monthly results from all of which are compared and published by the Advisory Committee for the Investigation of Atmospheric Pollution. In January, 1929, however, a station was opened in the St. Lawrence area, in place of that in City Road.

The monthly readings from the Newcastle stations are appended :—

ATMOSPHERIC POLLUTION.—NEWCASTLE RECORDS, 1928.

TOWN MOOR.

MONTH.	RAIN (Millimetres).	METRIC TONS OF DEPOSIT PER SQUARE KILOMETRE PER MONTH.								
		Insoluble Matter.			Soluble Matter.		TOTAL SOLIDS.	Included in Soluble Matter.		
		Tar.	Other Carbonaceous.	Ash.	Loss on Ignition.	Ash.		Sulphate as $S.O_3$.	Chlorine as Cl.	Ammonia as $N.H_3$.
January	71·0	0·10	1·48	1·42	2·41	2·98	8·39	1·66	0·45	0·04
February ...	39·8	0·17	1·09	1·65	1·99	2·23	7·13	1·39	0·45	0·04
March	83·8	0·09	1·59	2·10	3·68	3·52	10·98	2·02	1·01	0·13
April	42·6	0·09	0·78	1·83	2·13	2·56	7·39	1·22	0·51	0·07
May	48·3	0·14	1·45	1·85	2·41	2·51	8·36	1·42	0·38	0·04
June	150·5	0·57	2·44	2·51	1·50	4·22	11·24	1·35	0·80	0·07
July	56·8	0·26	1·83	1·59	0·68	0·80	5·16	0·47	0·20	0·01
August	154·7	0·40	1·62	2·01	1·25	7·11	12·39	2·54	0·65	0·07
September ..	24·9	0·08	1·21	1·58	0·16	2·58	5·61	0·65	0·27	0·01
October	110·8	0·01	1·42	1·67	4·66	3·32	11·08	2·05	0·78	0·06
November...	88·0	0·01	0·75	1·02	1·58	4·76	8·12	1·58	0·65	0·03
December ..	64·0	0·09	1·13	1·25	2·47	4·43	9·37	2·14	1·04	0·07
Total, 12 months ...	935·2	2·01	16·79	20·48	24·92	41·02	105·22	18·49	7·19	0·64
Average per month ...	77·9	0·17	1·40	1·70	2·08	3·42	8·77	1·54	0·60	0·05

An average of 8·77 metric tons per square kilometre per month = 8·4 cwts. per acre per annum, or 269 tons per square mile per annum, as compared with 8·5 cwts. per acre, or 272 tons per square mile in 1927.

WESTGATE CEMETERY.

Month.	Rain (Millimetres).	Metric Tons of Deposit per Square Kilometre per Month.								
		Insoluble Matter.			Soluble Matter.		Total Solids.	Included in Soluble Matter.		
		Tar.	Other Carbonaceous.	Ash.	Loss on Ignition.	Ash.		Sulphate as $S.O_3$.	Chlorine as Cl.	Ammonia as $N.H_3$.
January	86·2	0·82	3·64	4 46	4·31	5·17	18·40	3·25	0·56	0·13
February ...	45·9	0·50	3·43	3·88	3·31	3·85	14·97	2·67	0·39	0·07
March	89·0	0·36	4·64	5·05	3·74	4·98	18·77	2·86	0·95	0·18
April	34·7	0·24	1·81	4·39	2·50	3·06	12·00	0·83	0·44	0·07
May	38·9	0·53	3·66	6·11	3·42	3·35	17·07	2·21	0·31	0·06
June	139·0	0·19	3·05	3·64	3·61	4·73	15·22	2·39	0·70	0·14
July	41·7	0·95	2·25	3·67	0·75	1·67	9 29	0·81	0·24	0·03
August	121·6	0·43	2·64	3·17	0·72	5·11	12·07	1·50	0·56	0·06
September ..	29·2	0·11	2·56	3·08	0·40	3·74	9·89	1·32	0·21	0·04
October	98·7	0·03	4·20	4·14	3·56	5·13	17·06	2·98	0·70	0·10
November...	90·3	0·03	2·28	2·94	2·71	4·88	12·84	2·73	0·64	0·10
December ..	50·0	0·51	3·78	2·99	3·70	5·81	16·79	3·34	0·92	0·10
Total, 12 months ...	865·2	4·70	37·94	47·52	32·73	51·48	174·37	26·89	6·62	1·08
Average per month ...	72·1	0·39	3·16	3·96	2·73	4·29	14·53	2·24	0·55	0·09

An average of 14·53 metric tons per square kilometre per month = 13·9 cwts. per acre per annum, or 446 tons per square mile per annum, as compared with 14·5 cwts. per acre, or 464 tons per square mile in 1927.

CITY ROAD.

MONTH.	RAIN (Millimetres).	METRIC TONS OF DEPOSIT PER SQUARE KILOMETRE PER MONTH.								
		Insoluble Matter.			Soluble Matter.		TOTAL SOLIDS.	Included in Soluble Matter.		
		Tar.	Other Carbonaceous.	Ash.	Loss on Ignition.	Ash.		Sulphate as $S.O_3$.	Chlorine as Cl.	Ammonia as $N.H_3$.
January	58·9	0·35	2·69	5·01	0·83	4·71	13·59	2·02	0·57	0·12
February ...	33·2	0·36	4·96	6·99	1·26	3·92	17·49	2·23	0·38	0·09
March	82·5	0·89	7·30	9·51	2·15	5·61	25·46	2·77	1·35	0·22
April	21·3	0·63	3·90	8·45	1·62	3·32	17·92	1·68	0·42	0·05
May	33·7	0·50	5·22	7·06	1·55	2·57	16·90	1·46	0·33	0·09
June	94·5	0·88	8·85	25·38	2·08	7·56	44·75	3·17	1·01	0·14
July	42·8	0·34	9·28	15·63	1·03	3·51	29·79	1·67	0·33	0·05
August	118·1	1·01	7·86	10·25	0·71	7·56	27·39	2·67	1·01	0·21
September ..	19·2	0·15	9·37	11·90	1·35	4·80	27·57	2·20	0·30	0·06
October	73·2	0·52	8·59	29·42	2·78	7·17	48·48	3·46	0·83	0·19
November...	62·3	0·55	13·76	14·16	2·12	6·60	37·19	3·50	0·71	0·22
December ..	41·3	0·73	7·53	7·35	1·65	4·13	21·39	2·14	0·70	0·15
Total, 12 months ...	681·0	6·91	89·31	151·11	19·13	61·46	327·92	28·97	7·94	1·59
Average per month ...	56·7	0·58	7·44	12·59	1·59	5·12	27·32	2·41	0·66	0·13

An average of 26·32 metric tons per square kilometre per month = 1 ton 6 cwts. per acre per annum, or 839 tons per square mile per annum, as compared with 32·8 cwts. per acre, or 1049* tons per square mile in 1927.

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* This was the highest deposit recorded on this gauge since observations were commenced in 1914.

TOTAL IN THREE GAUGES IN THE CITY.

MONTH.	RAIN (Millimetres).	METRIC TONS OF DEPOSIT PER SQUARE KILOMETRE PER MONTH.								
		Insoluble Matter.			Soluble Matter.		TOTAL SOLIDS.	Included in Soluble Matter.		
		Tar.	Other Carbonaceous.	Ash.	Loss on Ignition.	Ash.		Sulphate as $S.O_3$.	Chlorine as Cl.	Ammonia as $N.H_3$.
Total, 12 months ...	2481·4	13·62	144·04	219·11	76·78	153·96	607·51	74·35	21·75	3·31
Total Average per month	206·8	1·14	12·00	18·26	6·40	12·83	50·63	6·20	1·81	0·28
Average per gauge 12 months	827·3	4·54	48·01	73·04	25·59	51·32	202·50	24·78	7·25	1·10
Average per gauge per month	68·9	0·38	4·00	6·09	2·13	4·28	16·88	2·07	0·60	0·09

An average of 16·88 metric tons per square kilometre per month = 16·2 cwts. per acre per annum, or 518 tons per square mile, as compared with 18·6 cwts. per acre or *595 tons per square mile in 1927.

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*This was the highest average recorded in the City during the past four years.

For comparison with the foregoing, the following returns of sunshine recorded at the Armstrong College, Newcastle, and at Cockle Park, near Morpeth (about 15 miles from the City), are given :—

Month.	Armstrong College. Sunshine (hours).	Cockle Park. Sunshine (hours).
January	47·3	60·5
February	69·6	88·2
March	39·4	53·2
April	88·4	133·6
May	95·1	153·7
June	165·6	177·5
July	208·2	214·6
August	142·9	154·6
September	118·9	144·8
October	91·6	95·7
November	65·4	81·2
December	36·6	48·8
Total for year	1169·0	1406·4
Average per month	97·4	117·2

CINEMAS, THEATRES, AND OTHER PLACES OF PUBLIC ENTERTAINMENT.

One new cinema has been opened during the year, making a total of 6 theatres and music halls and 29 cinemas, in addition to 90 other places such as dance and concert halls, billiard rooms, etc., for which licences are required.

Six applications for certificates of sanitation, which are required by the Licensing Justices before a licence is granted or renewed, were considered. All but two were granted, these being refused on sanitary grounds. Of the premises certified, one had been approved some years previously, and, after cleansing had been carried out, a fresh certificate was applied for and granted. Another was an additional suite of rooms in a dance hall, etc., parts of which had been certified previously. In one case the certificate was refused in the first instance, and eventually granted on the premises being brought into compliance with the requirements.

The testing of the ventilation and heating of all such places has again been systematically carried out, 67 day visits and 67 night visits being made for the inspection of sanitary arrangements and dressing rooms, and for testing purposes. In four cases it was found necessary to draw the attention of the management to contraventions. All were of a minor nature, and were attended to without delay.

As regards the testing by the " Kata " thermometer, 35 places, involving 73 separate tests, were visited, and the results show a little improvement upon those previously made, for whilst last year of the 34 tested, 21 came within a few points of the required standard, this year 22 reached it, and are termed " first-class." The second-class remain the same (13). It is not too much to hope that shortly the "second-class" may be promoted to "first-class." These results may be deemed fairly satisfactory. Only in three cases was it found necessary to communicate with managements in regard to the high temperature in their cinemas.

OFFENSIVE TRADES.

Fried Fish Shops still predominate in the registered offensive trades, as they do in all large towns. At present there are 156, as against 151 in 1927. This gives one such business to every 1,804 head of population in the city. They were regularly visited, both by day and night. In three cases it was necessary to serve notices to cleanse the premises, and in 16, to carry out other minor alterations or improvements. All were duly complied with, without any necessity for further action.

Other Trades.—The total number of offensive trades now carried on in the City is 195, compared with 190 last year.

This represents an increase of five fried fish shops, the other trades remaining as previously.

The number now on the register is :—

Rag and Bone Dealers	16
Dealers in Hides and Skins	4
Dealers in Blood or other putrescible animal products	1
Fat Melters or Extractors	3
Glue and Size Makers	2
Gut Scrapers	1
Fish Fryers	156
Bone Boilers	5
Soap Boilers	1
Tripe Boilers	6

Long delayed Bye-Laws for these trades are now being drafted.

SUMMARY OF NUISANCES, ETC., FOR THE ABATEMENT OF WHICH NOTICES WERE SERVED DURING 1928.

Defective "cell" privies in Walker and Benwell (to replace with water-closets)		73
Foul pail-closets (to replace with water-closets)		445
Defective waste water-closets (to replace with fresh water-closets with flushing cisterns, etc.)		12
Foul or defective ashpits not connected with privies (to remove and provide dust bins)		60
Insufficient water-closet or privy accommodation (additional water-closets ordered)		11
Defective or insufficient dust bins		1,134
Defective water-closets		823
Defective pail-closets (to repair, provide new pails, etc.)		18
Water-closets without water supply		106
Choked water-closets (mostly served on tenants)		44
Dirty water-closets (all served on tenants)		49
Defective drains (to repair, or construct new drains)		170
Insufficient means of drainage		9
Choked drains, etc.		525
Defective, want of, or choked sinks, waste pipes, etc		283
Defective or choked soil-pipes, vent shafts, etc.		32
Sink waste-pipes not trapped		31
Want of or defective pavement in yards, passages, etc.		180
Dirty rooms		45
Dirty bedding		1
Damp rooms		139
Overcrowding		19
Dirty yards, passages, stairs, etc.		114
Animals, pigeons, and fowls improperly kept		35
Offensive accumulations		86
Accumulations of manure		19
Want of or defective manure pits		6
Broken roofs and want of or defective or choked spouting		1,328
Want of water		150
Smoke nuisances		20
Emission of grit from factory chimneys		2
Noxious or offensive smells from works		2
Want of proper ventilation to rooms (including to floor space), broken window cords in tenements, etc.		585
Rooms inadequately lighted		4
Structural defects—internal and external—(broken plaster, floors, stairs, walls, etc.)		2,326
Cisterns supplying water to sinks, etc., dirty or defective		11
Filth thrown on yards, streets, etc.		5
Stables (unsuitable, defective, dirty, etc.)		16
Pig styes unsuitable or defective		3
Food manufactured or stored for sale under improper conditions		28
Bakehouses—Dirty, etc.		67
Council (and other) Schools—No drinking vessels provided to water supply		1
Drain choked		1
Condemned rooms (cellar dwellings) illegally occupied		1
Fried fish shops—(Want of cleansing)		3
(Other defects and contraventions)		16
Tenements—Limewashing not done		82
No adequate accommodation for washing of clothes		342
„ „ storage of food		1,855
„ „ preparation and cooking of food		238
Water supply and sinks not adequate, conveniently accessible, etc.		626
Insufficient number of water-closets provided		65
Inadequate lighting of common staircases—Natural	192	602
Artificial	410	

SUMMARY OF NUISANCES, ETC.—*Continued*

Staircases without proper handrails, etc.	72
Tents, Vans, Sheds, and similar structures—	
No water supply	1
Structural defects	1
Want of cleanliness	2
Tripe prepared in dwelling without permission	1
Drainage work covered over without sending requisite 24 hours' notice	2
Cinemas—Temperature excessive	3
Conveniences dirty, etc.	1
Pollution of watercourse	2
Unclassified minor nuisances	141
TOTAL	13,075

DETAILS RELATING TO CERTAIN WORKS CARRIED OUT IN THE ABATEMENT OF NUISANCES AND TO INSPECTIONS MADE DURING 1928.

Length (in yards) of old drains removed		1,183
Length (in yards) of new drains constructed		3,098
New trapped gullies provided to drains		384
Combined privies and ash-pits removed	privies	4
	ash-pits	3
"Cell" privies removed (in Walker and Benwell)		68
Pail-closets removed		421
Defective water-closets removed		72
Water-closets provided (in place of the foregoing privies and defective water-closets removed, also in 62 cases where the accommodation was previously insufficient)		617
Dry ash-pits removed and replaced by galvanised iron dust bins		61
Dust bins substituted for dry ash-pits where water-closets existed, and provided in cases where privies have been replaced by water-closets		‡573
No. of drains tested		927
No. of tests of above drains made by smoke and water		949
No. of inspections from complaints made at office (verbally or by letter)		2,461
No. of tenement inspections made		18,972
No. of contraventions of Tenement Bye-laws for which notices have been served to obtain remedy		5,758
Inspections of houses made from complaints received outdoors or nuisances discovered in the districts, including a large number of minor nuisances, such as choked drains and dirty yards, the abatement of which was accomplished at the time of visit, and without legal notice		4,591
Inspections to learn if works ordered were in progress		14,140
Supervisions of work in progress		6,541
Common yards and courts in the worst localities specially visited on Friday afternoons and Saturday mornings to obtain weekly cleansing		24,632
Inspections after infectious disease		893
Inspections of	milk shops and ice creameries (including retail shops)	1,550
,,	bakehouses	†1,361
,,	offensive trades	1,380
,,	wholesale margarine warehouses	43
,,	as to limewashing of tenements	2,751
,,	of schools	83
,,	under Housing Act	546
Inspection of Cinemas, etc. (day visits, 67 ; night visits, 67)		134
Tents, Vans, Sheds and similar structures		1,701
Miscellaneous Visits		3,862

‡ Dust bins supplied free by Corporation.

† Including 1,045 inspections made under the Factory and Workshop Acts by the Assistant nspectors of Workshops.

SUMMARY OF LEGAL PROCEEDINGS ORDERED TO BE TAKEN BEFORE THE MAGISTRATES FOR THE ABATEMENT OF NUISANCES, ETC., DURING THE YEAR 1928.

NATURE OF COMPLAINT.	No of Cases.	Work done and Nuisances abated without the Summonses being applied for.	Summonses issued.	
			Work done and Summonses withdrawn.	Other Results.
Public Health Acts :—				
Roofs defective and spouting defective and/or choked	13	13	..	
Walls damp	1	1	..	
Yard pavement defective.	1	1	..	
Scullery sinks defective..	2	2	..	
House in filthy condition.	1	1	..	
Public Health Act, 1875, *Sec.* 36, *and Newcastle-upon-Tyne Improvement Act,* 1892, *Sec.* 53 :—				
Foul privies (to be replaced by waterclosets)	18	18	..	
Newcastle upon Tyne Corporation Act, 1911, *Sec.* 55 :—				
Want of or defective dustbins for house refuse...	9	7	2	
Byelaws with respect to Tenemented Houses :—				
W.C. accommodation (insufficient, not conveniently accessible, etc.). (No. 8)	7	7	..	
W.C. structure, apparatus, and means of drainage not maintained in good order. (No. 11)	5	5	..	
Common staircases— Not kept in proper repair. (No. 18*a*).......	1	1	..	

SUMMARY OF LEGAL PROCEEDINGS ORDERED TO BE TAKEN BEFORE THE MAGISTRATES FOR THE ABATEMENT OF NUISANCES, ETC., DURING THE YEAR 1928.—*continued.*

NATURE OF COMPLAINT.	No. of Cases.	Work done and Nuisances abated without the Summonses being applied for.	Summonses Issued.	
			Work done and Summonses withdrawn.	Other Results.
Bye-laws with respect to Tenemented Houses—contd.—				
Inadequate means of—				
(*a*) Natural light. (No. 18b)	4	2	2	
(*b*) Artificial light. (No. 18c)	25	21	4	
Rooms inadequately ventilated. (No. 26c)	2	2	. .	
Limewashing of yards, passages, staircases, etc., not carried out in the month of May or June. (No. 28a)	6	4	2	
Inadequate accommodarion for—				
(*a*) Washing of clothes. (No. 28 f.i)	16	11	. .	In 5 instances the requirement was withdrawn owing to impracticability and proximity of the houses to Public Wash-houses.
(*b*) Storage of food. (No. 28 f.ii.)	34	30	4	
(*c*) Preparation and cooking of food. (No. 28 f.iii.)	1	1	. .	
Water supplies sinks and inadequate, not conveniently accessible, etc. (No. 28d)	23	14	3	In 6 cases the requirement was withdrawn owing to impracticability.
Houses not "throughout of adequate stability"; (structural defects, including roofs, plaster, etc.). (No. 28g)	7	7	. .	
Total	176	148	17	11

HOUSING.

That the problem of finding houses is little less acute than in previous years is shown by the following return :—

City Engineer's Census of Unoccupied Houses.

Class of House.	Nov., 1912	Aug., 1914	Nov., 1918	Nov., 1922	Nov., 1925	Nov., 1926	Nov., 1927	Nov., 1928
Self-contained	306	137	29	93	105	179	215	222
Flats (each Flat counted as a separate dwelling).	903	75	..	35	15	41	55	34
House and Shop combined............	68	29	2	9	6	27	18	28
Tenemented Houses	28	3	..	..	..	1	..	..
Total	1,305	244	31	137	126	248	288	284

Effect of Bad Housing.—Reference has already been made to the effect of bad housing and overcrowding upon the public health. It is of interest to summarise some of the points. Speaking generally, the wards with the highest populations per acre have also the highest death rates. The converse does not always hold, as some wards, such as Walker, may have small densely-packed areas scattered about among wide stretches of open space or farm land. The rates in these will be relatively high. But where the dwellings are evenly distributed and in good sanitary condition, and the population on area is low, the death rate is also low.

Thus the death rates from all causes are high in St. John's Ward (17·1), Stephenson (14·7), St. Lawrence Ward (14·5), and low in Fenham (9·3), Dene Ward (10·8), Heaton Ward (10·8), which occupy respectively also opposite ends of the scale in regard to quality of housing, and density of population (see tables on pages 57 and 65).

Similarly infantile mortality generally follows the same rule, and the wards with the highest wastage of child life are again among the most crowded ones. Thus Armstrong Ward has an infantile rate of 115 deaths per 1,000 births, St. John's, 113, and Stephenson, 105, as compared with rates of 46 and 50 in Jesmond and Fenham Wards respectively. Over a period of twenty years, the deaths per 1,000 births in one room, two room, and three room houses have been respectively 129, 116 and 97, and in the year under report were 98, 102 and 77.

In the case of tuberculosis one sees again the influence of congestion and bad houses in the fact that the highest mortalities for the year were in St. Anthony's (2·06), St. John's (1·99), Walker (1·97), while the lowest occurred in Fenham (0·54), Arthur's Hill (0·62), and Jesmond (0·81). The tuberculosis death rate for the whole City in 1928 was 1·32 per 1,000 population. Again, about 34 per cent. of the population live in one and two room houses, yet over 43 per cent. of the deaths from consumption were among these.

The Housing Act, 1925.

During the year 546 inspections were made under this Act. Great difficulty is experienced in securing compliance with notices under the Act. Owners complain of the large amount of arrears of rent outstanding, of high rates and taxation, and of the excessive cost of repairs. On the other hand, it must be admitted that there is a class of owner who thinks of nothing but getting the rents, quite ignoring the old proverb, which is never more true in anything than house property, that "a stitch in time saves nine." Small repairs, which if attended to at once, might only cost shillings, are neglected, with the result that they eventually cost pounds. Another point which is lost sight of by the owner is that the Sanitary Inspector is practically an unpaid clerk of works, who examines his houses and reports any defects to him. Unfortunately these reports are not always accepted by the owner in the spirit in which they are made.

However, notwithstanding the difficulties met with in working Sec. 3 of the Housing Act 1925 (which provides that in the event of a notice under the Act not being complied with, the local authorities may do the work and recover the expenses from the owner), a large amount of good work has been accomplished; much, however, remains to be done.

The excellent Housing Schemes carried out by the Corporation do not appear to have any appreciable effect on the conditions under which many of the poorer classes are living. In March last, three ejectment orders were applied for against occupiers of houses in the Prudhoe Street Insanitary Area. In each case the rent was about 4/- per week, and alternative accommodation was offered at from 11/- to 12/- per week. In one of the cases, the only income was the Old Age Pension of 10/- per week, and the man stated in court that he could not pay 11/5 per week for the three roomed house he was offered as alternative accommodation. This is only one illustration out of many that could be given.

What is required, is a good substantial house, of say three rooms, which could be let at a weekly rental of 5/- to 6/-.

Housing.

MINISTRY OF HEALTH TABLE.

Years ended 31st December, 1927 & 1928.

	1927	1928
Number of New Houses erected during the Year :—		
(*a*) Total (including numbers given separately under (*b*))..	2244	994
(*b*) With State assistance under the Housing Acts :		
(i.) By the Local Authority	1779	588
(ii.) By other bodies or persons	465	406
1.—*Inspection of Dwelling-Houses during the Year :—*		
(1) Total number of dwelling-houses inspected for housing defects (under Public Health or Housing Acts)	4023	3672
(2) Number of dwelling-houses (included under sub-head (1) above) which were inspected and recorded under the Housing Consolidated Regulations, 1925	658	737
(3) Number of dwelling-houses found to be in a state so dangerous or injurious to health as to be unfit for human habitation	20	17
(4) Number of dwelling-houses (exclusive of those referred to under the preceding sub-head) found not to be in all respects reasonably fit for human habitation	2731	2475
2.—*Remedy of Defects during the Year without Service of formal Notices :—*		
Number of defective dwelling-houses rendered fit in consequence of informal action by the Local Authority or their officers	484	623
3.—*Action under Statutory Powers during the Year :—*		
A.—Proceedings under Section 3 of the Housing Act, 1925 :—		
(1) Number of dwelling-houses in respect of which notices were served requiring repairs	578	429
(2) Number of dwelling-houses which were rendered fit after service of formal notices :—		
(*a*) By owners	557	415
(*b*) By Local Authority in default of owners	..	..
(3) Number of dwelling-houses in respect of which Closing Orders became operative in pursuance of declarations by owners of intention to close	..	..
B.—Proceedings under Public Health Acts :—		
(1) Number of dwelling-houses in respect of which notices were served requiring defects to be remedied	1669	1423
(2) Number of dwelling-houses in which defects were remedied after service of formal notices :—		
(*a*) By owners	1627	1384
(*b*) By Local Authority in default of owners	..	..
C.—Proceedings under Sections 11, 14 and 15 of the Housing Act, 1925 :—		
(1) Number of representations made with a view to the making of Closing Orders	..	..
(2) Number of dwelling-houses in respect of which Closing Orders were made	..	..
(3) Number of dwelling-houses in respect of which Closing Orders were determined, the dwelling-houses having been rendered fit	..	..
(4) Number of dwelling-houses in respect of which Demolition Orders were made	..	..
(5) Number of dwelling-houses demolished in pursuance of Demolition Orders	..	..

Unhealthy Areas and Improvement Schemes.

Both Liverpool Street and Prudhoe Street areas are now completely demolished, the tenants having been given other accommodation in the Council Houses at Cowgate or Barrack Road.

The Elswick East Terrace and Back George Street area is being proceeded with. It was suggested that part of the east side of Elswick East Terrace be included in this area, but after being inspected by a sub-committee, it was decided that this be not done. Later the same suggestion was made in regard to George Street, but this also was not done.

The Newcastle-upon-Tyne Improvement Act, 1882, Section 32.

No houses were dealt with under this Section during 1928.

Houses Demolished, etc.—Apart from action by the Health Committee, 7 tenemented houses (of 28 holdings), 12 self-contained houses, and 3 common lodging houses (accommodating 150 lodgers), have been demolished, or have ceased to be used as dwellings, for various reasons, (dilapidations, conversion to business premises, street improvements, etc.)

Houses built during the Year 1928.—The City Engineer reports that there were 406 self-contained houses built privately during the year under report. In addition, 588 dwellings were provided under housing schemes.

Tents, Vans, Sheds, and Similar Structures.

This question has again received the unremitting attention of the Department. At the beginning of the year there were in the City 125 occupied living vans, but by October this number had been reduced to 89, the greatest number being in Bunton's Yard, Union Road.

As all efforts by persuasion and the service of notice had failed, it was ultimately decided to take legal proceedings against two owner-occupiers, and one owner of three vans. The summonses were heard on October 12th, when the magistrates adjourned the cases a fortnight, and subsequently for one month, to give the defendants another opportunity of removing. The postponed hearing took place on November 23rd, when a further adjournment of two months was made, on the understanding that the owner of Bunton's Yard (who had not been summoned, but attended the court) would use every endeavour to have the vans removed. This period expired on January 18th, 1929, when none of the defendants appeared, and a further adjournment until 22nd January was made. On this occasion the owner of the three vans was fined £2, one owner-occupier fined 10/-. The other had removed.

Summonses were then issued against twelve owners, and the hearing took place on March 8th, 1929, when the magistrates adjourned the cases for seven weeks. The adjourned cases were heard on April 25th. All the defendants appeared, except two, who had removed. The remainder were fined 5/- each. As the owners stated that they could not get the occupiers out, the magistrates suggested that proceedings be taken against the tenants. On April 30th, a notice was served on each of the remaining occupiers, requiring them to remove. This has resulted in 8 having removed, leaving only 24 (as against 70 originally), in the three yards at the time of writing.

This work has called for the exercise of very great tact and discretion on the part of the District Inspector, for on several occasions a distinctly hostile attitude was adopted towards him.

The total number of visits and inspections in connection with the three colonies concerned in the foregoing proceedings was 1,579, and these, together with the preparation of evidence and attendance at court, have taken up a very large amount of time, which might with advantage have been given to other branches of work.

The housing question is again very apparent in connection with this subject. No doubt the majority of the occupiers would leave the vans if houses were available for them. Most of them are out of employment, and as a rule, they have many children, and are deserving of sympathy.

Tenemented Houses.

The number of tenemented houses in the City is 3,439, containing 9,816 holdings, as follows :—

1 Room.	2 Rooms.	3 Rooms.	4 Rooms.	5 Rooms.	Total.
3,070	5,581	1,059	105	1	9,816

During the year 18,972 inspections of tenemented holdings were made.

Tenement Bye-laws.

Since the appointment of the two additional inspectors in June, a very great impetus has been given to this work, the total number of houses inspected being 1,101, comprising 3,254 separate holdings, which has resulted in the following works being carried out :—

Cooking Accommodation has been provided in 202 holdings. This includes the provision of gas cookers in rooms without ovens, and the repair or renewal of existing fireplaces or ovens.

Food Storage Accommodation.—This has been provided in 2,349 holdings, in some cases by ventilation to existing cupboards, but generally by fixing an independent cupboard on an outside wall, with ventilation to the outer air.

Washing Accommodation.—289 new wash-houses have been provided, where the yard space is sufficient to allow of it. In many cases a disused cellar or room has been utilised.

Water Supply and Sink on stair-heads has been added in 348 cases. In houses with a central staircase, and where the waste pipe would have to pass under the floor, this requirement is not insisted upon.

Natural Light has been provided on stair-heads in 188 houses.

Artificial Light in a very great variety of forms has been provided on 224 common stair-heads. This is one of the most difficult of the Bye-Laws to carry out.

Additional W.C. Accommodation.—62 additional w.c.'s have been provided. Several cases are yet outstanding, in order to give owners or agents the chance of reducing the number of families by finding them other accommodation.

In addition repairs to floors, walls, ceilings, yard pavements, etc., have been carried out in many cases. There are still owners and agents, however, who will not make any move until instructions are given to take legal proceedings, and when cases are taken to court it cannot be said that the magistrates show any great sympathy with the endeavours of the Health Committee to raise the standard of living of our tenement dwellers.

On the other hand it is rather surprising to find how many of the occupiers resent having improvements made to their dwellings, and some have actually obstructed the carrying out of the requirements of the Bye-Laws. Many having been accustomed for years to keep their food in the "press," or in an unventilated cupboard in the kitchen, refuse to transfer it to the ventilated food store when this is provided. Water supply and sink on the stair-head, or in a room has been objected to, and there are cases where the washing accommodation which has been provided has never been used, the occupiers preferring to wash on the stair-head, in the passage, or in their rooms. It may be a matter of education and evolution, and perhaps the next generation will appreciate and use the facilities they are provided with. On the other hand it is satisfactory to find that in the majority of cases the improvements are made use of and highly appreciated. In many cases where the whole of the requirements of the Bye-Laws have been carried out without the rent being increased, which is done very often, the occupiers have been very demonstrative in their appreciation, and have stated to the District Inspector that they were quite happy and content, and did not require new council houses.

New Buildings and Sanitary Alterations.—370 plans were examined by the Medical Officer of Health before their submission to the Town Improvement and Streets Committee and, where necessary, suggestions forwarded to the City Engineer for his consideration, as compared with 297 during the previous year.

Common Lodging Houses.

The number of lodgers in the common lodging houses has been less this year than for some time past. This decrease is partly attributed by the keepers to the fact that the Guardians have withdrawn relief to men living in such houses, the result being that a number have left and gone into private lodgings.

During the year six houses were closed and removed from the Register. Only two applications were received for the registration of new houses, and both were granted. One of these was in respect of a Hostel for Norwegian sailors in the west end of the city. The promoters of the scheme, of which Mr. C. Morgenstierne, Norwegian Consol, is the chief, were prepared to carry out any suggestions made by your Inspector, with the result that the house is certainly a model. It contains 11 rooms, including bathroom, lavatory, and two w.c's, and is in good structural, sanitary, and decorative condition. Although under the Bye-Laws there is accommodation for 33 persons, only 20 are taken in, and this is the number it is registered for. Since it was opened, it has been conducted in the most satisfactory manner, and is a credit to those responsible for it. This makes the total number of houses on the Register 38, with accommodation for 1,332 persons.

In one case only was it found necessary to take drastic action against any of the keepers. This was the case of a keeper and his wife who were convicted at the police court, and fined £25 each for receiving stolen jewellery, the proceeds of a robbery by two of their lodgers. It was decided that the keeper was not a fit and proper person to have charge of the house, and under the provisions of the Corporation Act, 1911, he was removed from the Register. Shortly afterwards his mother applied to be registered as the keeper, and as she had for many years conducted similar houses to the satisfaction of the Department, it was decided to grant her request.

As will be seen from the summary, lodging houses for men only are in the majority. There is need of a good house for women, for there are only two of this class in the City.

The following summary shows in detail the accommodation as at the end of the year :—

Description of Lodgers.	No. of			Accommodation.			
	Houses.	Single Beds	Double Beds	Married Couples	Single Women	Single Men	Total.
Married couples and single women ...	1	24	6	6	24	. .	36
Women only	2	67	. .	. .	67	. .	67
Men only	35	1229	. .	. .	. .	1229	1229
TOTAL......	38	1320	6	6 12 persons	91	1229	1332

The total number of lodgers for which the houses are registered is 1,332, as compared with 1,474 at the end of 1927, showing a decrease of 142 in the total accommodation, due to the removal of 6 houses and the addition of 2 others.

The average number of lodgers per night was 1,187, the highest number being 1,447, and the lowest 1,123.

REGISTERED COMMON LODGING HOUSES.

SUMMARY OF WORK DONE AND VISITS MADE DURING THE YEAR 1928.

Number of Houses on the register at the end of the year..........	38
Application for registration (Newcastle Corporation Act, 1911, Sec. 63) ; granted	41
Houses ceased to be occupied as common lodging houses	6*
Inspections made in the day-time	5,068
Inspections made in the night-time	227
Notices served { re washing of bed clothes, 158 { re limewashing of houses, 79 }	237
Contraventions of Bye-laws, etc. :—	
Structural defects in houses	7
Defective water-closets	16
Defective roofs and defective or choked spouting..........	3
Choked W.C.'s and drains	16
Dust bins defective or insufficient	3
W.C.'s without a supply of water	1
Lack of efficient ventilation (broken sash-cords, etc.)	2
Unclassified minor nuisances	2
Deaths reported	1
Cases of infectious disease reported (measles 3, tuberculosis 9)......	12

* 3 of these had ceased to be occupied at the beginning of the year, and registration was not applied for.

Factories and Workshops.

The inspection of these was well maintained during the year, 8,751 visits having been made. These included visits to workshops, "domestic" workshops, workplaces, laundries, and bakehouses, and also to factories on receipt of complaint from H.M. Inspector. Generally speaking, their condition as regards sanitary accommodation, ventilation, cleanliness, water supply, and other matters of a hygienic nature is satisfactory.

During the year 59 lists of "outworkers" were received, 15 employers having sent in their lists twice, as required by the Factory and Workshop Act, 1901, and 29 employers only once. Included in the lists were 7 names and addresses of outworkers residing in other towns, and these, in accordance with the requirements of the Act, were forwarded to the Local Authority of the district concerned. The condition of outworkers' premises shows a general improvement, and they are now up to the standards of ordinary workshops.

22 notices as to insanitary conditions in factories and workshops were received from H.M. Inspector of Factories, 9 of which related to factories (which are not visited by the Inspectors of the Health Department except on receipt of a complaint from H.M. Inspector), and 13 to workshops. Many of the latter, however, had been found and dealt with by the District Inspectors before the complaint was received. The others were dealt with and the necessary works carried out without having to resort to legal proceedings.

ADMINISTRATION OF THE FACTORY AND WORKSHOP ACT, 1901, IN CONNECTION WITH FACTORIES, WORKSHOPS AND WORKPLACES, DURING THE YEAR 1928.

Home Office Tables.

1.—INSPECTION OF FACTORIES, WORKSHOPS AND WORKPLACES.

INCLUDING INSPECTIONS MADE BY SANITARY INSPECTORS.

PREMISES. (1)	NUMBER OF Inspections. (2)	NUMBER OF Written Notices. (3)	NUMBER OF Occupiers Prosecuted (4)
Factories (Including Factory Laundries.)	230	287	None
Workshops (Including Workshop Laundries.)	7,217		
Workplaces (Other than Outworkers' premises.)	1,304		
Total	8,751	287	..

2.—DEFECTS FOUND IN FACTORIES, WORKSHOPS AND WORKPLACES.

PARTICULARS.	NUMBER OF DEFECTS.			Number of Offences in respect to which Prosecutions were instituted.
(1)	Found. (2)	Remedied. (3)	Referred to H.M. Inspector. (4)	(5)
**Nuisances under the Public Health Acts*:—				
Want of cleanliness	244	244	..	..
Want of ventilation	10	9	..	..
Overcrowding	..	..	..	..
Want of drainage of floors	..	..	..	..
Other nuisances	65	65	..	..
†Sanitary accommodation — insufficient	22	21	..	..
†Sanitary accommodation — unsuitable or defective	79	79	..	..
†Sanitary accommodation — not separate for sexes	8	7	..	..
Offences under the Factory and Workshop Acts—				
Illegal occupation of underground bakehouse (s. 101)	..	..	..	..
Other offences Excluding offences relating to outwork and offences under the Sections mentioned in the Schedule to the Ministry of Health Factories and Workshops (Transfer of Powers) Order, 1921.	..	..	2	..
Total	428	425	2	..

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* Including those specified in sections 2, 3, 7 and 8 of the Factory and Workshop Act, 1901, as remediable under the Public Health Acts.

† Sec. 22 of the Public Health Acts Amendment Act, 1890, is in force. The standard fixed by the Sanitary Accommodation Order (No. 89) of 4th February, 1903, is followed as a model.

OUTWORK IN UNWHOLESOME PREMISES, Section 108.

Nature of Work. (1)	Instances. (2)	Notices served. (3)	Prosecutions. (4)
As per Home Office List	None	None	None

TRADES.

Particulars as to the number and nature of the various trades carried on in the workshops of the City:

Trades.	Workshops.	Domestic Workshops.	Workplaces.
Athletic Outfitters, etc.	12	..	..
Bacon Curing, Pickles, etc.	54	1	2
Bags, Waterproofs, etc. (making and repairing)	19	2	2
*Bakehouses	265	..	..
Blacksmiths, Plumbers, etc.	120	..	3
Bouquets and Wreaths (making, etc.)	11	..	..
Boots, etc. (making and repairing)	126	25	..
Dressmaking, Underclothing, etc.	270	67	..
Drysalters, Cleaning & Packing Fruit, Tea, etc.	33	1	55
Furniture Making, Joiners, etc.	212	7	..
Harness, etc. (making and repairing)	27	..	..
Jewellery, Watches, etc. (making and repairing)	70	2	..
Laundries	22	..	..
Machines and Tools (making and repairing)	140	3	3
Painters, Engravers, Photographers, etc.	83	3	11
Restaurant Kitchens, etc.	..	..	118
Tailoring, Shirts, etc.	264	35	..
Miscellaneous	104	..	90
Totals	1,832	146	284

* Includes 31 " Factory " and 98 " Domestic " Bakehouses.

Inspection of Council and Other Schools.

During the year 83 inspections of schools were made and only two minor defects were found, which when brought to the notice of those responsible were promptly remedied.

It is to be regretted that the Education Authority has not continued the good work of removing the objectionable " trough " water closets which still exist in many of the older schools, and providing instead independent water closets. Two schools were converted in 1927, but this year none has been done.

Rag Flock Acts.

Three samples of Rag Flock were taken formally under this Act, and on analysis were found to conform to the standard of purity required by the Regulations made under the Act, allowing not more than 30 parts of chlorine in 100,000 parts of flock.

In addition two "informal" samples of a substance resembling rag flock were submitted for analysis for informative purposes only.

Exhumations.

During the year one exhumation and re-interment under a Faculty from the Bishop was supervised by the District Inspector.

The operations were carried out during the early morning, and were conducted in a sanitary and reverent manner.

NEW LEGISLATION.

The Agricultural Produce (Grading and Marking) Act, 1928, which came into operation in August, provides for the grading and marking of agricultural produce, and for purposes connected with the matters aforesaid.

One of the most important provisions is that all premises used for the purpose of the cold storage or chemical storage of eggs must be registered. So far only one application has been made, and it was granted.

Regulations have also been issued dealing with the grading and marking of eggs produced in England and Wales, and also for the marking of preserved eggs.

Merchandise Marks (Imported Goods) Order, 1928.

This Order provides for the marking of imported goods of the following classes or descriptions, with an indication of origin :—

(1) Currants, sultanas, and raisins; (2) eggs in shell; (3) dried eggs; (4) oat products.

This, however, does not take effect until various times in 1929.

Rag Flock Act, 1928.

A short amending Act of two sections was passed and came into operation in August. It is intended to remove any doubt as to the meaning of the term "flock manufactured from rags" used in the Act of 1911.

Food and Drugs (Adulteration) Act, 1928.

This Act, which consolidates and amends previous legislation on the subject, came into operation on January 1st, 1929.

Changes in the Staff.

In January, District Inspector E. J. Joicey resigned on being appointed Senior Sanitary Inspector to the Ryton Urban District Council, Leonard Wade being his successor.

The two inspectors required for the inspection of Tenement Houses were transferred from the Infectious Diseases Section, their places in that section being filled by the appointment of Maurice Swales and Edward G. Wingate.

I am, Sir,
Your obedient servant,
C. Raimes,
Chief Sanitary Inspector,
Inspector of Common Lodging Houses, etc.

Health Department,
Town Hall,
30th June, 1929.